UNITED
NATIONS

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Security Council

Distr.
GENERAL

S/22792
15 July 1991

ORIGINAL: ENGLISH

REPORT OF THE SECRETARY-GENERAL PURSUANT TO PARAGRAPH 4 OF SECURITY COUNCIL RESOLUTION 699 (1991)

1. The present report is submitted pursuant to paragraph 4 of Security Council resolution 699 (1991), of 17 June 1991, which reads as follows:

> "Decides to encourage the maximum assistance, in cash and in kind, from all Member States to ensure that activities under section C of resolution 687 (1991) are undertaken effectively and expeditiously; further decides, however, that the Government of Iraq shall be liable for the full costs of carrying out the tasks authorized by section C; and requests the Secretary-General to submit to the Council within 30 days for approval recommendations as to the most effective means by which Iraq's obligations in this respect may be fulfilled".

I

2. The fulfillment by the Government of Iraq of the obligations set out in paragraph 4 quoted above is contingent upon both the availability of funds to meet the financial requirements, as well as concrete arrangements to ensure that the necessary resources are channelled to the United Nations.

3. It will be recalled that the Security Council, in deciding upon the financing of the Compensation Fund, did not envisage the use of "frozen assets" of Iraq held in third countries (see paragraph 16 of the Secretary-General's report dated 2 May 1991 pursuant to paragraph 19 of Security Council resolution 687 (1991), document S/22559). It is therefore assumed that the Council would not wish these assets to be used to meet Iraq's obligations in connection with the fulfillment of paragraph 4 of this resolution.

4. The Secretary-General considers that the most obvious way of obtaining financial resources for this purpose would be the sale of some Iraqi petroleum and petroleum products. The net proceeds of such sales would be deposited in a United Nations account to be used to reimburse the costs of carrying out the tasks authorized under section C of Security Council resolution 687 (1991). The quantities to be sold would therefore have to be established in the light of these costs.

5. While the approach outlined above might ensure that Iraq can meet these financial obligations, it would, at the same time, reduce the resources available for the Compensation Fund and/or those remaining for the Government of Iraq. In this connection, the Secretary-General, in determining the appropriate level of Iraq's contribution to the Compensation Fund, had taken account of: (a) the requirements of the people of Iraq; (b) Iraq's payment capacity, taking into consideration external debt servicing; and (c) the needs of the Iraqi economy.

6. The approach proposed in paragraph 5 above would also necessitate that the sanctions imposed on Iraq under Security Council resolution 661 (1990) be lifted, for a limited period and under clearly defined conditions. It may be necessary to repeat this process in the light of the ultimate costs to be reimbursed.

7. This arrangement presupposes cooperation by Iraq as well as strict supervision of the sale of petroleum and petroleum products from Iraq. To this end, appropriate monitoring would have to be ensured. Should Iraq fail to meet its payment obligations, the Secretary-General would need to report the matter to the Security Council.

II

8. Following the adoption of Security Council resolution 699 (1991), the Secretary-General requested the Permanent Representative of Iraq to inform him by 10 July 1991 of the manner in which the Government planned to meet its obligations under paragraph 4 of that resolution. The reply of the Government of Iraq, dated 7 July 1991, reads as follows:

> "With reference to your letter dated 26 June 1991 I have the honour to inform you that my Government still believes that its offer to take an initiative and destroy the weapon systems would have reduced the costs of destroying the weapons and reduced the related risks and time and would have been the safest solution, but the Security Council did not favour this offer and issued its rash and unfair resolution 699 (1991). Nevertheless, Iraq has recently received encouraging signals from the Special Commission concerning this offer to destroy the chemical weapons, and this offer is still valid and it together with Iraq's experience in this area should help in carrying out the tasks assigned to the Special Commission and the IAEA under part C of resolution 687 (1991)."

9. It should be noted in this connection that the Special Commission is considering the Iraqi offer and no decision has yet been taken on this matter.

10. As far as assistance in cash and in kind is concerned, it may be of interest to the Security Council to note that as of 15 July 1991, voluntary contributions in the amount of $US 2 million have been received from Member States in response to paragraph 4 of Security Council resolution 699 (1991).

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S/22793
15 July 1991
ENGLISH
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LETTER DATED 15 JULY 1991 FROM THE PERMANENT REPRESENTATIVE OF IRAQ TO THE UNITED NATIONS ADDRESSED TO THE SECRETARY-GENERAL

With reference to the letter of the Permanent Representative of the Kingdom of Saudi Arabia to the United Nations, document S/22760 dated 3 July 1991, I wish to explain to you that the competent Iraqi authorities have advised in respect of the contents of the above-mentioned letter that they have notified the mission of the International Committee of the Red Cross (ICRC) in Baghdad of the arrest of 10 Saudi Arabian civilians because they contravened Iraqi laws and that they have been registered with ICRC. The Iraqi authorities have expressed their readiness to repatriate these 10, whose names are annexed hereto, once the above-mentioned authorities have issued them a pardon.

I request that this letter be circulated as an official document of the Security Council.

(Signed) Abdul Amir A. AL-ANBARI
Ambassador
Permanent Representative

Annex

List of Saudi Arabian detainees

1. Sayir Abdullah Sayir
2. Hurr Ahmad Abdullah
3. Ayid Turki Ali
4. Mashi Mashhur Hamidi
5. Hamud Muhammad Matar
6. Mahdi Muhammad Nafi'
7. Mubarak Mutifi Muqbil
8. Hadi Muhammad Muti'
9. Rashid Nazzal Sa'd al-Mutayyiri
10. Muhammad Hasan Muhammad

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15 July 1991
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LETTER DATED 15 JULY 1991 FROM THE PERMANENT REPRESENTATIVE OF IRAQ TO THE UNITED NATIONS ADDRESSED TO THE SECRETARY-GENERAL

On instructions from my Government, I have the honour to inform you that United States aircraft continue to violate Iraqi airspace, as follows:

I

1. American air activity inside Iraqi airspace on 11/12 July 1991 amounted to 19 sorties flown by nine two-aircraft formations and one single aircraft at speeds of 600 to 720 kilometres per hour and at low and medium altitudes (4,000-5,000 metres).

2. Air activity centred over Dohuk, Arbil, the area north of Mosul and Amadiyah.

II

1. American air activity inside Iraqi airspace on 12/13 July 1991 amounted to 29 sorties flown by 12 two-aircraft formations and five single aircraft at speeds of 700 to 900 kilometres per hour and at altitudes ranging from 2,000 to 8,500 metres.

2. Air activity centred over Mosul, Dohuk, Arbil, Amadiyah, Rawanduz and Zakho, for the purpose of observation and provocation.

III

1. American air activity inside Iraqi airspace on 13/14 July 1991 amounted to 32 sorties flown by 15 two-aircraft formations and two single aircraft at speeds of 600 to 900 kilometres per hour and at low and medium altitudes.

2. Air activity was centred over Arbil, Mosul, Dohuk and Rawanduz, for the purpose of observation and provocation.

I should be grateful if you would have this letter circulated as a document of the Security Council.

(Signed) Abdul Amir A. AL-ANBARI
Ambassador
Permanent Representative

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S/22795
15 July 1991
ENGLISH
ORIGINAL: ARABIC

LETTER DATED 15 JULY 1991 FROM THE PERMANENT REPRESENTATIVE OF IRAQ TO THE UNITED NATIONS ADDRESSED TO THE SECRETARY-GENERAL

On instructions from my Government and further to our correspondence, most recently our letter No. 216 of 8 July 1991, I have the honour to inform you of fresh occurrences of Iranian violations of the cease-fire between Iraq and Iran, as follows:

1. Between 2130 hours on 7 July 1991 and 0450 hours on 8 July 1991, the Iranian side fired tracers several times in the direction of Iraqi forward units at geographical coordinates 879336 in the southern sector (map of Kut al-Hawashim).

2. At 2000 hours on 9 July 1991, the Iranian side fired a 60-millimetre mortar shell and a RPG-7 rocket at the positions of Iraqi forward units (geographical coordinates 2647) in the central sector (map of Sheikh Sa'd).

3. At 1120 hours on 13 July 1991, Iraqi airspace was violated by an Iranian F-5 fighter aircraft on course from Sumar to Haran and Mandali. The aircraft penetrated three kilometres in the direction of Mandali at an altitude of 400 metres and at very low speed before turning back to the Iranian rear two minutes later. At 1130 hours on the same day, Iraqi airspace was violated by a fighter aircraft flying from the Iranian rear at an altitude of 1,000 metres: the aircraft penetrated 1 kilometre into Iraqi airspace over the Faruq control post before turning back towards the Darwan mountains inside Iran.

These fresh violations, which join the list of the previous repeated Iranian violations of the provisions of the cease-fire between the two countries, confirm without any doubt the persistence of the Iranian Government in its deliberate endeavour to encroach upon the sovereignty and security of Iraq.

The Government of my country holds the Iranian Government fully responsible for all the damage caused to Iraq by such violations. In

notifying you of these violations, I hope that you will take such measures as are required by the provisions and principles of the Charter to ensure that they are halted.

I should be grateful if you would have this letter circulated as a document of the Security Council.

(Signed) Abdul Amir A. AL-ANBARI
Ambassador
Permanent Representative

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General Assembly Security Council

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GENERAL

A/46/304
S/22796
16 July 1991

ORIGINAL: ENGLISH

GENERAL ASSEMBLY
Forty-sixth session
Items 68, 94, 99 and 137 of the
preliminary list*
REVIEW OF THE IMPLEMENTATION OF THE
DECLARATION ON THE STRENGTHENING
OF INTERNATIONAL SECURITY
RIGHT OF PEOPLES TO SELF-DETERMINATION
HUMAN RIGHTS QUESTIONS
DEVELOPMENT AND STRENGTHENING OF
GOOD-NEIGHBOURLINESS BETWEEN STATES

SECURITY COUNCIL
Forty-sixth year

Note verbale dated 15 July 1991 from the Permanent Mission of Yugoslavia to the United Nations addressed to the Secretary-General

The Permanent Mission of the Socialist Federal Republic of Yugoslavia to the United Nations presents its compliments to the Secretary-General of the United Nations and has the honour to transmit, in connection with the recent communications of the Permanent Mission of the People's Republic of Albania to the United Nations, enclosed herewith, the statement by the Federal Secretariat for Foreign Affairs of Yugoslavia (see annex).

It would be appreciated if this document were distributed to the member States of the General Assembly under the items 68, 94, 99 and 137 of the preliminary list, and of the Security Council.

* A/46/50.

Annex

Statement by the Federal Secretariat for Foreign Affairs of Yugoslavia

The letter by the President of the Republic of Albania, Ramiz Aliu, addressed to Heads of State or Governments, permanent members of the Security Council of the United Nations, to the President of the Conference on Security and Cooperation in Europe Ministerial Council and to the President of the European Community Commission, published on 8 July 1991 in the Albanian mass media, does not come as a surprise. However, all member States of the Conference on Security and Cooperation in Europe which wish to safeguard principles of the CSCE key documents have every cause for concern.

It is obvious that the Albanian leadership decided to try to take advantage of the present situation in Yugoslavia to realize their well-known aspirations regarding Yugoslav territories populated by the Albanians. In this way Albania seriously threatens the territorial integrity of neighbouring Yugoslavia and consequently peace and security in the Balkans and in Europe. The latest act directly instigates armed rebellion in Kosovo, which obstructs the efforts exerted by the Yugoslav and international political factors, primarily those of the European Community and the Conference on Security and Cooperation in Europe, with a view to finding a solution to the Yugoslav crisis through dialogue, in order to preserve peace and ensure democratic developments in these parts.

Although it has recently become a member State of CSCE, which implies the fulfilment of certain requirements, Albania continues to pursue the activities and policies on account of which it refused to adopt the Final Document of the CSCE for a decade. It thereby assumes the responsibility not only for the consequences on the relations between our two countries, but for the stability of the region as a whole. It is high time for Albania - should it want to be accepted in the framework of the overall European cooperation - to realize that it is bound to abide by all principles and achievements of the democratic relations within CSCE, with its neighbours in the first place, harbouring no illusions that today any other approach might be possible.

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Security Council

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GENERAL

S/22797
16 July 1991
ENGLISH
ORIGINAL: SPANISH

LETTER DATED 9 JULY 1991 FROM THE SECRETARY-GENERAL ADDRESSED TO THE PRESIDENT OF THE SECURITY COUNCIL

I have the honour to refer to Security Council resolution 696 (1991) of 30 May 1991 by which the Council decided to entrust a new mandate to the United Nations Angola Verification Mission, which was to be redesignated UNAVEM II, and to paragraph 14 (a) of my report of 20 May 1991 (S/22627) concerning the appointment of a new Chief Military Observer of the Mission.

I am now in a position to inform the Security Council that, having consulted with the two parties, I propose, with the consent of the Council, to appoint Major-General Lawrence A. Uwumarogie (Nigeria) as the Chief Military Observer of UNAVEM II after the present Chief Military Observer, Brigadier-General Pericles Ferreira Gomes (Brazil), lays down his command in early August 1991.

I should be grateful if you would bring this matter to the attention of the members of the Security Council.

(Signed) Javier PEREZ de CUELLAR

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S/22797*
17 July 1991
ENGLISH
ORIGINAL: SPANISH

LETTER DATED 11 JULY 1991 FROM THE SECRETARY-GENERAL ADDRESSED TO THE PRESIDENT OF THE SECURITY COUNCIL

I have the honour to refer to Security Council resolution 696 (1991) of 30 May 1991 by which the Council decided to entrust a new mandate to the United Nations Angola Verification Mission, which was to be redesignated UNAVEM II, and to paragraph 14 (a) of my report of 20 May 1991 (S/22627) concerning the appointment of a new Chief Military Observer of the Mission.

I am now in a position to inform the Security Council that, having consulted with the two parties, I propose, with the consent of the Council, to appoint Major-General Lawrence A. Uwumarogie (Nigeria) as the Chief Military Observer of UNAVEM II after the present Chief Military Observer, Brigadier-General Pericles Ferreira Gomes (Brazil), lays down his command in early August 1991.

I should be grateful if you would bring this matter to the attention of the members of the Security Council.

(Signed) Javier PEREZ de CUELLAR

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* Reissued for technical reasons.

91-23148 2434i (E)

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Security Council

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S/22798
16 July 1991
ENGLISH
ORIGINAL: SPANISH

LETTER DATED 16 JULY 1991 FROM THE PRESIDENT OF THE SECURITY COUNCIL ADDRESSED TO THE SECRETARY-GENERAL

I have the honour to inform you that your letter dated 9 July 1991 (S/22797) concerning the appointment of the Chief Military Observer of the United Nations Angola Verification Mission (UNAVEM II) has been brought to the attention of the members of the Security Council. They agree with the proposal contained in your letter.

(Signed) Ricardo ALARCON de QUESADA
President of the Security Council

91-22997 2472h (E)

UNITED
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Security Council

Distr.
GENERAL

S/22798*
17 July 1991
ENGLISH
ORIGINAL: SPANISH

LETTER DATED 16 JULY 1991 FROM THE PRESIDENT OF THE SECURITY COUNCIL ADDRESSED TO THE SECRETARY-GENERAL

I have the honour to inform you that your letter dated 11 July 1991 (S/22797) concerning the appointment of the Chief Military Observer of the United Nations Angola Verification Mission (UNAVEM II) has been brought to the attention of the members of the Security Council. They agree with the proposal contained in your letter.

(Signed) Ricardo ALARCON de QUESADA
President of the Security Council

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* Reissued for technical reasons.

91-23153 2580d (E)

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Security Council

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S/22799
17 July 1991
ENGLISH
ORIGINAL: SPANISH

LETTER DATED 15 JULY 1991 FROM THE SECRETARY-GENERAL ADDRESSED TO THE PRESIDENT OF THE SECURITY COUNCIL

I have the honour to transmit herewith for the attention of the members of the Council the report of the inter-agency mission headed by my Executive Delegate for the United Nations Inter-Agency Humanitarian Programme for Iraq, Kuwait and the Iraq/Turkey and Iraq/Iran border areas, Sadruddin Aga Khan.

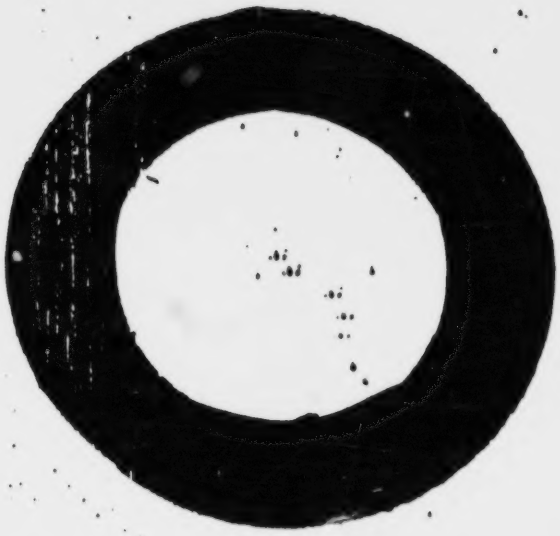
The task entrusted to the mission, which visited Iraq from 29 June to 13 July 1991, was to assess current needs for humanitarian assistance and recommend measures for meeting those needs.

(Signed) Javier PEREZ de CUELLAR

Annex

[Original: English]

Report to the Secretary-General dated 15 July 1991 on humanitarian needs in Iraq prepared by a mission led by Sadruddin Aga Khan, Executive Delegate of the Secretary-General



أَنْهَرٌ مِّن
مَّآءٍ غَيْرِ ءَاسِنٍ ۖ وَأَنْهَرٌ مِّن لَّبَنٍ لَّمْ يَتَغَيَّرْ طَعْمُهُۥ

Therein are rivers of water unpolluted, and rivers of milk whereof the flavour changeth not

The Holy Koran

Sura XLVII, Ayah 15

Foreword by the Executive Delegate

The aftermath of the Persian Gulf war of January and February 1991 presented a compelling spectacle of suffering and devastation to the international community. The tragic consequences of conflict, the untold loss of life and destruction were compounded by massive displacements of ill-prepared populations, by ecological disasters of unprecedented magnitude, by the collapse of the structures that sustain life in today's human societies. The region continues to face an enormous challenge in its attempt to recover from the ravages of war. In Iraq itself, the upheaval's insidious effects are leading to the gradual but inexorable collapse of essential services, leading to the risk of a humanitarian crisis whose eventual dimensions would dwarf today's difficulties.

When we decided, last month in Geneva, to try to confront these urgent issues, we knew that speed was vital. We were also aware that our findings had to be factual, precise and credible. The expert team from the United Nations programmes and agencies concerned - the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), the World Food Programme (WFP), the Office of the United Nations High Commissioner for Refugees (UNHCR) and the United Nations Development Programme (UNDP) - carried out a most professional and effective assessment, well supported by their colleagues already in Iraq. The mission fanned out throughout the country, revealing both pockets of destitution and the full scale of the problems in all regions. This was a field-based mission; the observations and conclusions were drawn from on-the-spot country-wide evaluation, not imposed from the vantage point of predetermined opinion.

As well as our United Nations partners and their colleagues based in Iraq, we benefited from a third tier of expertise: a very distinguished group of non-United Nations specialists and personalities participated in the mission and its activities. I am deeply grateful to Donato Chiarini, Thomas Hammarberg, Arve Johnsen, Jean-Daniel Levi, Sir John Moberly, Edwin Moore, Elliot Richardson and Nico Schrijver for having accepted my invitation to join us. They made a contribution of outstanding intellectual, moral and technical value, which undoubtedly enhances the report's scope and credibility. Needless to say, it represents a consensus view to which all of us subscribe, while not committing every member to every single phrase and sentence written.

Our aim has been to be sober, measured and accurate. We are neither crying wolf nor playing politics. But it is evident that for large numbers of the people of Iraq, every passing month brings them closer to the brink of calamity. As usual, it is the poor, the children, the widowed and the elderly, the most vulnerable amongst the population, who are the first to suffer. This cannot leave us unconcerned, whatever the solution proposed. In

the pages of this report we have tried, in accordance with the purely humanitarian remit that was ours, to diagnose the problem and suggest remedies. It will be for the international community to decide how to respond further.

(Signed) Sadruddin Aga Khan

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INTRODUCTION

1. The decision to undertake the present mission was made by the Secretary-General, his Executive Delegate Sadruddin Aga Khan, and the executive heads of United Nations specialized agencies and programmes responsible for the humanitarian programmes in Iraq, Kuwait and the Iraq/Turkey and Iraq/Islamic Republic of Iran borders at a meeting held at Geneva on 13 June 1991. Extensive first-hand reports had been received in previous weeks indicating that the conditions of the civilian population in many parts of Iraq were steadily deteriorating. The onset of summer was likely to exacerbate the situation further, while the return of large numbers of those displaced was also having a considerable impact on severely strained food, medical, water and infrastructural resources.

2. Given the indications of the worsening plight of the majority of Iraq's population, the meeting decided that a high-level mission should proceed to Iraq to assess the current humanitarian needs and recommend measures to address them. The mission was to be action- and field-oriented, should be carried out rapidly and should focus in particular on the emergency needs of vulnerable groups. Within its overall framework, the mission would concentrate on four main sectors: food supply; water and sanitation; health; and energy (with special reference to power generation).

3. The mission was led by the Secretary-General's Executive Delegate, Sadruddin Aga Khan, and was composed of experts from the relevant United Nations programmes and agencies, namely, UNICEF, WHO, FAO, WFP, UNHCR and UNDP, as well as consultants, specialists and eminent personalities from outside the United Nations system. The latter comprised participants from Canada, France, the Netherlands, Norway, Sweden, the United Kingdom of Great Britain and Northern Ireland, the United States of America and the Commission of the European Communities. While not part of this mission, a separate team from the International Telecommunication Union (ITU) was in Iraq at the same time. Several of their findings are noted in the present report and a summary of their own mission report is included as appendix X.

4. Mission members received briefings at Geneva from the Executive Delegate before flying to Baghdad on 29 June to join with staff from United Nations agencies already in the country. The first part of the mission was devoted to information collection and analysis in Iraq. At Baghdad mission members were briefed by United Nations staff, non-governmental organizations (NGOs), and the International Committee of the Red Cross (ICRC) and were welcomed by the Minister of State for Foreign Affairs and members of the National Committee for the Coordination of Relief and Assistance. After meetings and discussions with staff of the relevant technical ministries on 1 July, mission members visited various sites, mainly outside Baghdad, from 2 to 7 July. The mission divided into four teams, which visited sites in 16 of the 18 governorates (including Baghdad).

5. The Executive Delegate and additional mission members arrived in Baghdad on 8 July. Together with certain members of his team, he met with various government officials, including the Deputy Prime Minister, the Foreign Minister, ministers of relevant technical Ministries and other senior officials. The Executive Delegate also visited the southern region in order to further the provision of relief assistance to vulnerable groups and displaced persons in the area of the marshes. The mission team departed for Geneva on 13 July.

6. The Executive Delegate and members of the mission greatly appreciated the support and cooperation extended to them by the Iraqi authorities throughout the course of their stay in the country.

I. BACKGROUND TO THE SITUATION IN IRAQ

7. As of mid-1990, Iraq was in certain respects fast approaching a standard comparable to that of some highly industrialized countries in the sector areas of concern to the present mission. A wide-reaching and sophisticated health system had been put in place, capable of routinely providing services such as kidney dialysis treatment in regional hospitals. The provision of clean drinking water was the norm, with over 1,500 treatment units nationwide providing a very high quantity of water (e.g., over 450 litres per person per day in Baghdad). Sewage treatment, including a number of very large and technically sophisticated plants, kept the quality of the water in the Tigris and Euphrates rivers at a reasonable level. While poverty and moderate malnutrition remained a problem in some areas, severe malnutrition, and related syndromes such as marasmus and kwashiorkor, were not major public health problems. A key component of the country's infrastructure and services was the generation of power through a system of 20 main stations. These stations provided power not only for the 70 per cent of the population living in urban areas, but also for many of those in outlying regions, as well as for the large amount of irrigated farm land. The country had a modern telecommunications network in both the urban and the rural areas, serving millions of Iraqis through 900,000 telephone lines.

8. An essential basis for this complex and extensive infrastructure was trade. For example, most of the machinery, as well as the spare parts to keep it running, was obtained from outside the country. Approximately 70 per cent of the food needs of the country were met through imports from abroad. What primarily paid for this level of imports was revenue from the sale of oil.

9. After the invasion of Kuwait by Iraqi forces on 2 August 1990, the situation started to change abruptly. From 6 August, by its resolution 661 (1990), the Security Council imposed on all States a comprehensive package of financial and economic sanctions. The war in January and February 1991 brought about massive destruction in many elements of the physical and service infrastructure. This was followed by further major damage created by the civil conflicts that ensued. These internal conflicts also led to the displacement in March and April 1991 of an estimated 400,000 persons to the

Turkish border and approximately 1.2 million to the border with the Islamic Republic of Iran or into that country itself.

10. In February 1991, a joint WHO/UNICEF team assessed the impact of the war on the women and children of Baghdad. From 10 to 17 March, a United Nations mission assessed the urgent humanitarian needs in Iraq and presented its findings in the Secretary-General's report of 20 March 1991. This led to an initial appeal by the Secretary-General on 8 April for $US 178 million for aid to vulnerable groups in Iraq. On 9 April, the Secretary-General appointed Sadruddin Aga Khan as his Executive Delegate for United Nations humanitarian programmes for Iraq, Kuwait and the Iraq/Turkey and Iraq/Islamic Republic of Iran border areas. A small core Office of the Executive Delegate was subsequently established with the help and support of UNDP. A second appeal was then made on 12 April for $US 400.2 million for refugees and displaced persons on the borders of Iraq and Turkey and in the Islamic Republic of Iran.

11. These two appeals were consolidated on 15 May, together with additional needs not previously covered. On 12 June 1991, an updated and revised appeal was issued for $US 448.9 million. This included $US 34.9 million for the deployment of a United Nations guards contingent inside Iraq. Of the funds requested, approximately half had been pledged to date. The majority of the funds received are designated for aid to refugees and returnees.

12. United Nations assistance in Iraq is currently provided under the terms of the Memorandum of Understanding signed by the Foreign Minister of Iraq and the Executive Delegate on 18 April 1991 and an annex to it dated 25 May 1991. Eight United Nations agencies operate in the country with approximately 400 international staff (as of 30 June), of which 197 are United Nations guards and 140 UNHCR staff. Further deployment will bring the contingent to its full complement of 500 guards. Other agencies providing assistance include an estimated 20 international NGOs, ICRC, and the International Organization for Migration.

II. SUMMARY OF MAIN FINDINGS AND RECOMMENDATIONS

13. The mission members concluded that the scale of damage and decline in Iraq in the past year had indeed been dramatic. Eight years of war with the Islamic Republic of Iran had taken their toll even before the destruction of the Persian Gulf war. In significant parts of the country, the destruction caused by the internal civil conflicts that followed the war was comparable or even greater. A final factor had been the consequence of economic and financial sanctions imposed on Iraq, including the freezing of its foreign assets and a ban on the international sale of its oil. It was clear to the mission that the impact of the sanctions had been, and remains, very substantial on the economy and living conditions of its civilian population. The mission was informed that the last reserves of food commodities that are included in the ration basket are in the process of being exhausted.

14. During the past several months major efforts have been made by the Government of Iraq to restore the country to some semblance of its pre-war situation. These efforts have been only partially successful. For example, a number of bridges have been repaired, and with the limited pumping of oil for local consumption, internal transport capabilities have in large part been restored.

15. However, the mission found that in the sectors of concern to it, the process of restoration had in many crucial respects reached its limit. Indeed, there are a number of problem areas that are likely to worsen in the foreseeable future. A review of several of the main findings within each of the sectors, which are discussed in more detail in the later sections of this report, gives reason for alarm.

16. As far as water is concerned, damage to water-treatment plants and the inability to obtain needed spare parts have cut off an estimated 2.5 million Iraqis from the government system they relied upon before the war. The perhaps 14.5 million Iraqis who continue to receive their water through this system are now provided on average with one quarter the pre-war amount per day. Much of this water is of doubtful quality, owing to such problems as defective treatment and lack of sufficient hours of electric power. Major damage was also suffered by the national sewerage system owing to the loss of electric power during the war. Most of this damage has not been repaired, with raw sewage now flowing in some city streets and into the rivers. Diarrhoeal diseases, thought to be mainly caused by water and sewage problems, are now at four times the level of a year ago. The country is already experiencing outbreaks of typhoid and cholera.

17. The health of the population in Iraq is now challenged by growing environmental hazards, insufficient access to quality medical care and inadequate nutrition. Public health programmes have reduced their activities for lack of supplies. Hospitals and public health centres are severely affected by lack of electricity, water and medicines. Medical, surgical, dental and laboratory equipment suffer from the lack of spare parts, reagents and maintenance. The fleet of vehicles that once assured the effectiveness of the health services has been reduced to a few units. Iraq used to import annually approximately $US 360 million worth of drugs and medical appliances alone. It is highly improbable that international humanitarian aid will be able to meet this demand. Mechanisms need to be established urgently for the country to procure its own medical supplies and to maintain its equipment in operation. Failing this, the health situation will further worsen. Vulnerable groups, each day more numerous, will be the first victims.

18. As for the food supply, the position is deteriorating rapidly in virtually all parts of the country. Preliminary forecasts for the current main harvest indicate that this year's aggregate cereal production will be around one third of last year's. This will further increase the country's dependence on imports, which even in good years has meant that approximately 70 per cent of its food needs must be imported. Data collected on prices throughout the country show tremendous levels of inflation. For example,

current retail prices for wheat and rice - the two normal staple food items - remain 45 and 22 times their corresponding price levels of last year, while average incomes have shown only moderate gains. The government rationing system, even if basically equitable in its distribution, can provide only about one third of the typical family's food needs, resulting in a strikingly low level of dietary intake. The situation is particularly alarming with respect to the nutritional status of children, pregnant and lactating mothers as well as households headed by widows. Several independent studies and direct observation by the mission confirmed the high prevalence of malnutrition among children. There are numerous, reliable reports of families resorting to sales of personal and household items to meet their immediate needs. Taken collectively, this information clearly demonstrates a widespread and acute food supply crisis which, if not averted through timely intervention, will gradually but inexorably cause massive starvation throughout the country.

19. The current emergency feeding programmes, such as those being implemented by WFP for vulnerable groups, refugees, returnees and internally displaced persons accordingly acquire special significance and need to be maintained for at least the next few months. The process of repatriation must be encouraged by the continued provision of timely and adequate amounts of relief aid, not least to ensure that the situation in the areas to which the refugees are returning reverts to normal as quickly as possible. It should be noted that the economic sanctions also lessen the ability of the returning refugees to resume their ordinary lives and traditional economic activities. Indeed, the mission was informed by the Kurdish leadership that the sanctions were taking an unfortunately harmful toll upon the living conditions of the Kurdish population.

20. In terms of power generation, Iraq's capacity had been reduced to a negligible level by the end of February 1991. At present, the power generating capacity has been restored to 25 per cent of the pre-war level. As it is operating continuously, electricity production is about 40 per cent of the 1990 level. However, this restoration process has been accomplished through such methods as cannibalizing parts from damaged units, making risky makeshift repairs and operating the remaining plants without the normal breaks for maintenance and repairs. At this point, little more can be done to increase power generation further unless major imports of new parts are allowed. Barring this, power output can be expected to decline from now on. The mission has also assessed the situation of the oil sector. The requirements of the internal market can essentially be met with the current production and refining capacity, although with repairs needed soon for some refineries that are in precarious condition. The main concern is the oil export capacity, which is now only one third of the pre-war level.

21. As for telecommunications, the ITU team noted that at least 400,000 of the original 900,000 telephone lines were damaged beyond repair, while additional ones were partly damaged. The main microwave links connecting most of the cities were also damaged. This has had an obvious negative impact on the operation of health and social services as well as on humanitarian

assistance programmes. All international telecommunications were put out of service. Even after restoration work, the system can still handle only 30 per cent of its pre-war internal service, while international telecommunications remain out of service.

22. Clearly, the situation described above is one that deserves urgent attention and immediate response. In considering what actions to recommend, the mission came to a series of additional conclusions.

23. As spelled out in the specific sector reports, the primary action that is needed to address these needs is the import of material goods. This includes such items as drugs, vaccines, medical equipment, ambulances, spare parts and replacements for water and sewerage equipment, food and agricultural inputs and equipment and parts for power generation plants and the oil sector, as well as for the telecommunications network.

24. A review of the relevant Security Council resolutions and decisions by the Security Council Committee established by resolution 661 (1990) concerning the situation between Iraq and Kuwait indicates that the sale or supply to Iraq of most of these items is not restricted, although for most items notification to or prior approval by the Sanctions Committee would be required. Many fall under the clauses exempting "medicine and health supplies" and "foodstuffs" from the sanctions (see resolutions 661 (1990), 666 (1990) and 687 (1991)). Others fall under the category of materials and supplies for "essential civilian needs" as exempted in resolution 687 (1991), as well as the clause contained in the 20 March 1991 Sanctions Committee decision. The latter provides that civilian and humanitarian imports to Iraq, as identified in the report of that date to the Secretary-General, are integrally related to the supply of foodstuffs and supplies intended strictly for medical purposes ... and that such imports should also be allowed ..., subject to approval by the Sanctions Committee under its no-objection procedure. So far, the relevance to the humanitarian programme of the import of spare parts and equipment for the restoration of electric power plants and for the telecommunications network has not been recognized.

25. In this context, the mission observed that, in most of the cases that came to its attention, problems to date with importing the above items had more to do with the financing of such imports than actual prohibitions. The question of financing becomes even more crucial in relation to future importations that need to be made.

26. The mission members utilized the best information available to them to estimate the costs of returning the systems in each of the four sector areas to their pre-war condition. This proved possible for most sectors, with the estimates being $US 12 billion for the power-generating capacity, $US 6 billion for the oil sector, $US 450 million for the water and sanitation systems, $US 2.64 billion for food imports and $US 500 million for agricultural imports. While these calculations were not possible for health, an indicative figure would be the typical level of international imports for the health sector for one year, which has been approximately $US 500 million.

27. The principal criterion adopted by the mission in evaluating these needs has been that it is concerned not only with addressing immediate requirements of humanitarian scope and nature, but also with averting a crisis in the next 6 to 12 months. To illustrate this point, urgent measures must be taken now to ensure that the next agricultural planting season can be completed under reasonably normal conditions.

28. Consequently, the mission attempted to determine the costs for some lower level of actions, over a one-year time-frame. Figures were calculated for providing approximately two fifths of the pre-war per capita levels of clean drinking water and putting a corresponding proportion of the damaged sewage-treatment capacity back in operation. Expenditures for imports for health services were calculated at the pre-war level. Food import calculations were based on the ration level that WFP provides to sustain disaster-stricken populations. Special supplemental feeding programmes to support the nutritional needs of malnourished children and pregnant and lactating mothers for one year were calculated. Power generation estimates were based on restoring approximately one half of the pre-war capacity of the country. For the oil sector, the mission worked out a cost based on the consolidation of existing refineries, the restoration of lubrication units, the repair of the Iraq-Turkey pipelines, and of the oil facilities in the Kirkuk areas. This would not include repair of the southern oil fields.

29. The total estimated costs for this greatly reduced level of services came to approximately $US 6.8 billion over a one-year period. This includes $US 180 million for water and sanitation, $US 500 million for health services, $US 53 million for supplemental feeding, $US 1.62 billion for general food imports, $US 300 million for essential agricultural needs, $US 2 billion for the oil sector and $US 2.2 billion for power generation. If this analysis is applied to a four-month time-frame, the requirements would come to $US 60 million for water and sanitation, $US 167 million for health services, $US 18 million for supplemental feeding, $US 540 million for food imports, $US 100 million for essential agricultural imports, $US 667 million for the oil sector, and $US 1.1 billion for power generation. The power and oil sectors include allowances for the front-end costs occurring in these sectors. Thus, the total for an initial four-month period would be $US 2.63 billion.

30. The massive financial requirements to establish even this reduced level of service are of a scale far beyond what is, or is likely to be, available under any United Nations-sponsored programme. The current United Nations appeal for humanitarian assistance for Iraq, Kuwait and the border areas with the Islamic Republic of Iran and Turkey has received only some $US 210 million to date. Most of these funds are pledged for the needs of refugees and returnees. Further, any additional requests for aid to Iraq must compete with a continually lengthening list of other emergency situations around the world with very compelling needs.

31. It is evident that the Iraqi Government itself will have to revise its priorities and mobilize all internal resources. It will also have to finance the import of the type of materials under discussion, for which it has already requested approval from the Security Council Committee established by resolution 661 (1990). It certainly appeared that the Iraqi Government has the potential itself to generate the funds required to cover the needs identified by the team. This could be done either by the unfreezing of substantial amounts of Iraqi assets now held abroad or through the pumping and subsequent international sale of oil. The mission was informed that foreign exchange reserves of only $US 14.75 million were on hand in the central bank and that the Government's holding of gold bullion in support of the national currency had remained constant for the last 20 years.

32. With respect to the possible sale of oil by the Iraqi Government to finance such imports, paragraph 23 of Security Council resolution 687 (1991) empowers the Security Council Committee established by resolution 661 (1990) to approve exceptions to the prohibition against the import of commodities and products originating in Iraq, with the explicit purpose of assuring "adequate financial resources" on the part of the Iraqi Government to procure medicine and health supplies, foodstuffs and materials and supplies for "essential civilian needs".

33. According to the Government, the current oil-production capacity of the country is 1,455 million barrels per day. Taking into account internal consumption requirements, the production available for export could be about 1 million barrels per day. This would mean a potential net revenue of $US 5.5 billion over one year. Furthermore, in order to increase the production to the pre-war level, extensive repairs and rebuilding would have to take place, particularly in the Basra area. The mission therefore recommends that Iraq be allowed to import over a four-month period $US 1 billion worth of equipment, spare parts and consumable materials to start restoration of the oil sector.

34. If the Security Council Committee were to decide that Iraq should be allowed to use funds from oil sales or facilitate the use of blocked accounts in order to meet urgent humanitarian needs, the Government indicated that it would cooperate in making available documentation relating to sales of crude oil as well as purchases of the authorized imports. It noted that all revenues accruing from oil sales were normally held in United States banks and that a suitable device for monitoring such credit balances could be established. This procedure could include information on the use of unfrozen accounts. In addition, the staff of the United Nations and other humanitarian agencies present in Iraq, as well as special missions designated by the Secretary-General as required, might for instance submit periodic assessments and in particular report on the changes in the composition of the rations of foodstuffs and the provision of health and social services brought about by increased imports. The staff concerned would also obtain up-to-date information on the repair and improvement of power-generating capacity, the operation of water and sewerage plants and the like. The envisaged procedure would thus help to ensure the actual receipt of the civilian and humanitarian goods in Iraq and their utilization by the intended beneficiaries.

35. In summary, the mission recommends that:

(a) Immediate steps be taken to alleviate the priority needs identified by the mission in the areas of food supply, health services, water and sanitation, power generation, the oil sector and telecommunications;

(b) To meet these needs, essential goods and materials should be imported, including:

(i) Food to meet the minimum consumption requirements, in part to reduce and shorten the emergency relief operation now in operation at donors' expense;

(ii) Agricultural inputs, including fertilizers, pesticides, animal feed and drugs, machinery and spare parts needed to repair the damaged irrigation and drainage system;

(iii) Drugs, including raw materials needed for local pharmaceutical production, vaccines, medical supplies and medical, surgical, dental and diagnostic equipment for the health system;

(iv) Vehicles (and spare parts for them) needed by the health system, including ambulances;

(v) Spare parts, supplies and equipment and replacement pumps and other heavy equipment needed by water-treatment and pumping facilities and by the sewage treatment system;

(vi) Equipment, materials and spare parts for the electric power system, the oil sector and for the telecommunication sector;

(c) A monitoring system should be instituted for this purpose. The relevant commercial transactions relating to the export of oil and the import of the above-mentioned goods and services could be made sufficiently transparent at the international level to allow adequate controls with respect to their shipment and entry into Iraq. The monitoring arrangements in the context of the United Nations humanitarian presence in Iraq, as outlined in paragraph 13 of the Memorandum of Understanding of 18 April 1991, could be further developed and strengthened so as to provide adequate information on the destination and use of the goods in question.

III. SECTOR REPORTS

A. Water, sanitation and environmental health

36. Appraisals of the provision of safe drinking water, sanitation and environmental health services were based on information from several sources. These included earlier studies and surveys by UNICEF and other United Nations agencies, ICRC, NGOs and related government services, as well as personal

accounts of other knowledgeable individuals and direct observations during the mission's extensive field visits. The Governorates of Kut, Amarah, Basra, Erbil and Dokuk were visited, and extensive discussions took place with the population, local authorities and plant operators in each of them. In addition, technical discussions were held with the Ministry of Health and the General Establishment for Water and Sewage at Baghdad. Finally, the field visits included inspection of the treatment plants and review of their performance.

37. In the course of discussion, the mission learned that a sizeable quantity of spare parts, equipment and ductile iron pipes were being held in Turkey owing to the embargo imposed on Iraq, and that these had already been paid for. Mission members were also informed that a large number of contracts negotiated and signed with foreign companies had not been executed owing to the embargo.

38. Before the advent of the Persian Gulf crisis, over 90 per cent or 16.8 million of the population of Iraq had access to an abundant quantity of safe drinking water through a network of some 1,500 water treatment plants. The rest of the population (1.9 million) relied on untreated water from rivers and springs. In mid-1990 average national water consumption was estimated at around 416 litres per capita per day. Baghdad and a score of cities situated along the Euphrates and Tigris rivers benefited from modern sewage-treatment plants which kept the quality of river water at reasonable levels of purity.

39. Extensive efforts to eradicate malaria, leishmaniasis and other vector-borne diseases had resulted in dramatic decreases in their incidence. An effective environmental health surveillance system ensured a high quality of drinking water. These efforts, coupled with a relatively extensive health delivery system in the country, spared Iraq from the epidemics that are encountered in many other developing countries.

40. The events of the Persian Gulf crisis severely disrupted the water and sanitation services. Actual potable water production is now 1.5 million cubic metres a day whereas it was 7 million cubic metres a day in mid-1990. An estimated 2.5 million people who formerly received water through the government system have been deprived of this service (of these, 1.2 million are located in the country outside Baghdad, many of them along the two main highways leading north from Basra where bridges were heavily bombarded). This is due to two factors: the damage or destruction of water-treatment plants and water-distribution networks and the lack of spare parts to repair the systems in place that were not affected by the war. Ad hoc maintenance practices over the years have also compounded the problem. The remaining 14.3 million inhabitants now receive some 100 litres per capita, ranging from 10 litres per capita in some rural areas to 250 litres per capita in parts of Baghdad. This is a nearly threefold decrease, and the water provided is of doubtful quality. With water-consuming industries now at a standstill, this quantity of water is barely sufficient to meet the most basic needs of the population. However, once power becomes available and these industries resume operations, competing with the needs of the population, it is likely that

potable water will become dangerously scarce, unless production is greatly increased in the interim.

41. About 300 wells, mainly in the north of the country, were seriously damaged during the past six months. Additionally, many of the boreholes require maintenance. All of these water sources require replacement equipment, including chlorinators. In the rural areas of the country a large proportion of the population receives water from local springs. A high percentage of these springs have been damaged, as have their protection installations and delivery pipes. Such sources can be restored with the participation of the local population.

42. The large treatment plants at Al-Khadir (near Samawa) and at Ramadi were seriously damaged. These stations require major repairs, and they should be put back into service as soon as possible. Cannibalization of equipment has left weak, inefficient units operating without any back-up capabilities. Many maintenance stages are bypassed when they stop. For example, the clarifiers are bypassed at the Basra treatment plant because the motors there are burnt. At the same station, chlorine is fed directly from the cylinder, as there is no chlorinator. Spare parts, a steady power supply and technical expertise from the manufacturers are needed to help keep the plants in service.

43. There are also small treatment plants, mostly skid-mounted, installed all over the country. All of these units require spare parts for maintenance and over 75 per cent of them require chlorination equipment. Four of the above plants are totally worn out and need replacing; currently, the population served by them is obliged to use badly contaminated water. The main problem facing a large number of these plants, many of which have no stand-by generators, is the lack of electrical power supplied.

44. Supply and distribution networks were also severely affected. The destruction of the two bridges in Baghdad with their main feeder pipes deprived about 20 per cent of the city's population of access to the municipal water supply. The leaks in the system, many of which are results of the war, are presumed to be underground. Water engineers are unable to verify this for lack of leak detectors. Many leak detectors, repair collars and large-diameter pipes are needed to replace the destroyed feeders in Baghdad and elsewhere.

45. Throughout the country, electric power is available only six to eight hours a day on average. This forces the systems to shut down, thus causing serious risks of pollution within the networks, because of a back-siphonage effect that is especially severe in areas with high water-tables. In cities such as Basra, fresh sewage was observed overflowing in many city streets when such power interruptions occurred.

46. Aluminium sulphate and chlorine, the chemicals essential for water treatment, are in short supply; indigenous production halted following the destruction of the local chemical plants. These chemicals now have to be imported. Owing to the chlorine shortage since the end of the war, the water

is all too often distributed without chlorination. The shortage of chlorine has also prevented the pre-chlorination process in treatment plants and therefore algae and water grass have grown on the walls of the concrete water channels, the clarifiers and settling tanks of these plants. There is little point in cleaning up this infrastructure until chlorine is available on a steady basis and they can be put back into effective operation on a long-term basis.

47. Water quality has been affected tremendously by the limited stocks or lack of chlorine available to the treatment plants. In a number of water treatment plants visited, chlorine residual readings are no longer being taken, for lack of the necessary reagents.

48. Bacteriological tests are being carried out haphazardly and results are not reliable, since power cuts interfere in the incubation of samples being analysed. In Amarah, for example, the presence of faecal material in treated water has been recorded several times by the plant laboratory. This has been attributed to the decreasing performance capacity of the sand filters, which are not being cleaned regularly (for lack of compressors), as well as to the irregular application of chlorine.

49. The General Establishment for Water and Sewage in Baghdad has a state-of-the-art water-testing laboratory that is partially functioning. The modern equipment received just at the outbreak of the Persian Gulf crisis is idle, since the staff is not in a position to install or operate it. Foreign expertise is needed to make the equipment operational and train local technicians in its use and maintenance.

50. In the sewerage sector, most of the treatment plants have ceased to operate, owing to flooding of the pumping stations by sewage and rainwater during the period when electrical supply was not available at all. The sewage is now either overflowing in the streets of cities (Basra), or being discharged into the rivers without any treatment (Amarah, Baghdad). These technically sophisticated plants require continuous and sustained maintenance. Available expertise cannot provide the necessary servicing of these installations, which require foreign expertise from the firms that built them. The ultimate threat is posed by the large quantities of sewage from upriver cities that flow untreated into the country's two major rivers and run downstream. These rivers, the Euphrates and Tigris, constitute the main water sources of the country. Much of the population along their banks is now obliged to drink this polluted water straight from the river, since most of the water purification systems they depended upon no longer function. This further compounds the vicious cycle of water-borne diseases.

51. Basra, at the end of the most contaminated river, faces a particularly drastic situation: the high salinity of its water is compounded by the high water-table that lies beneath the city. With only 1 pump operating in 4 out of 26 main sewage-pumping stations, Basra is choking. Sewage overflows its streets and has inundated basements and low-lying areas of the city. The city authorities are in a quandary as to whether to satisfy the drinking water

needs of the population, thus contributing to the sewage problem, or to limit the flow of water, until such time repairs can be made. The latter choice would necessitate the provision of spare parts and new pumps; the cannibalizing of severely damaged pumps can no longer solve this massive and growing problem.

52. The capacity of the solid-waste collection and disposal system is less than 25 per cent of the mid-1990 level. This capacity is decreasing further owing to the poor maintenance of remaining equipment and the lack of spare parts. The core of the problem, however, lies in the destruction of specialized equipment which occurred during and after the upheavals, especially in the south. Garbage stays for long periods of time before being collected. The lack of pesticides is allowing the continuous increase of insects, rodents and other pests, many of which are disease vectors. The fleet of garbage collection equipment, primarily compactor trucks, has to be upgraded through the purchase of spare parts and new trucks. As incinerators no longer function, sanitary landfills must be established in the proximity of large towns. This will require the provision of earth-moving equipment (graders, bulldozers and dump trucks).

53. The control measures for vector-borne diseases and environmental health conditions are affected by the lack of insecticides, rodenticides and chemical reagents required in performing bacteriological and chemical quality tests for water, sewage and foodstuffs. Municipal solid-waste disposal systems have been disrupted owing to the looting of the vehicular parks in many of the municipalities. In many of the municipalities visited, the sanitary landfill method has been discontinued as bulldozers and graders are no longer available.

54. The sanctions imposed are hampering the importation of the spare parts, chemicals, reagents, insecticides and means of transportation required to provide environmental health services to the urban areas of the country. They are stimying the delivery of these services to rural areas.

55. The results of the humanitarian efforts launched by the international community and the great strides made by the various government departments to reactivate essential services have not succeeded in meeting even basic recurrent water and sanitation requirements. They are clearly insufficient to re-establish standards of living at a minimal acceptable level.

56. The substantial demand for spare parts, replacement machinery and transport equipment is so great that the humanitarian effort will not be able to meet existing needs. For example, chemicals for water treatment supplied by humanitarian organizations up to the end of May represent the needs of 14 days of operation only at current pumping levels. As for spare parts and equipment, the amount needed represents less than 1 per cent of the real need. It is only by making it possible for Iraq, which had been self-supporting in this sector for many years, to use its own resources to finance these life-sustaining, essential services that they can be re-established.

57. An analysis was made of the costs of the imported supplies and equipment needed to raise present potable water-production rates to their pre-Persian Gulf war levels of approximately 7 million cubic metres per day and to put the waste-water treatment and solid-waste disposal systems back to their pre-war levels. This was estimated to require approximately $US 450 million.

58. A further analysis was made of the costs required to reach a lower level of operation. This involved producing 3 million cubic metres per day of potable water and returning the sewage-treatment systems to approximately half of their pre-war level. The costs came to $US 90.6 million for the water system and $US 73.75 million for the sewage-treatment systems. This work could certainly be completed within a one-year time-frame if the importation of the needed materials is allowed. In addition, $US 15.85 million worth of imported materials and goods need to be imported for the operation of vector control and environmental health services for one year. This would give a total cost for one year of $US 180.2 million.

59. The mission recommends that the following actions be taken to deal with the problems identified in the water, sanitation and environmental health sectors:

(a) Allow both the importation of spare parts, which were prepaid and held in transit to Iraq and the implementation of already negotiated projects;

(b) Permit the importation of supplies and equipment needed to raise present potable water-production and sewage-treatment rates to their pre-Persian Gulf war levels. If this is not possible, importation of at least $US 180.2 million in goods and materials should be allowed over the next 12 months to re-establish these systems at the minimal rates described earlier. A reasonable initial four-month level of importation at this reduced target level would be $US 80 million, which reflects some of the front-end costs of restoring major equipment;

(c) Facilitate the contracting of foreign expertise for the Baghdad Water and Sewage Authority and the General Establishment for Water and Sewage to reinforce and increase the availability of their services to the population of Iraq.

B. Health sector

60. In order to appraise the status and trends of health and of the provision of health services in Iraq, the mission drew information from various complementary sources. These included: Iraqi government written material and officials (especially health personnel); earlier studies and surveys; personal accounts by other knowledgeable individuals in the country including the staff of NGOs and members of the community, patients and their relatives; and direct observation during the mission's extensive site visits. The design of the mission and the time-frame within which it had to operate did not allow extensive primary data collection and analysis.

61. Before August 1990, the health care system in Iraq was based on an extensive and developing network of primary-, secondary- and tertiary-care facilities, both governmental and private. These facilities were linked among themselves and with the community by a large fleet of ambulances and service vehicles and by a good communication system. The health-care system, which tended to emphasize curative aspects, was complemented by a set of active public health initiatives.

62. The war, and to a larger measure the ensuing internal civil disturbances, resulted in significant damage to hospitals and health centres. The extent of this damage varied from one governorate to another, being most severe in the southern Governorate of Basra and in those bordering Turkey and the Islamic Republic of Iran. However, site visits made by the team led to the conclusion that the physical infrastructure of health services remained adequate to cope with the present needs with the exception of certain areas where refugees chose to return. The functional capability of the system was however greatly diminished by the shortage of water and power supply, by the lack of vehicles and the collapse of the telecommunications system.

63. Since the early days of the war between the Islamic Republic of Iran and Iraq in 1982, foreign exchange for the import of equipment and supplies has been tightly controlled. Heavy equipment, such as X-ray machines, CAT scans, laboratory apparatus and generators have been procured through a national authority. This authority has relied heavily on international sources for the supply of spare parts and for many major repair and maintenance operations. An effect of the current sanctions and other international restrictions has been to limit markedly the provision of these items and services.

64. It is estimated that less than half of the diagnostic and medical equipment present in health-care facilities is still in operable condition. Some of it has been damaged by frequent power fluctuations or inadequate water supply. Other machines are still awaiting repeatedly postponed major maintenance operations.

65. Most hospitals have now had to function for months partly on electricity provided by generators that had largely exceeded their recommended usage time. Two thirds of the generators in the hospitals visited were out of order. The fleet of vehicles had suffered major losses. Some had been taken

away, others destroyed, others needed repair. Frequently, governorates were left with a dozen vehicles out of an initial pool of over 100.

66. Regarding drugs and medical supplies, the isolation of Iraq from its normal sources of procurement since August 1990 has made it draw on its own internal stocks. These may be nearly exhausted. Certain vaccines, antibiotics to combat epidemics of cholera and typhoid, drugs for the treatment of certain metabolic diseases (e.g. insulin for diabetes), and certain drugs for treating cancer and cardiovascular diseases, are no longer available in sufficient quantities from the central medical store. The production of the local pharmaceutical industry has come to a halt as a consequence of the lack of power supply, water and raw materials.

67. According to government figures, the total amount of funds spent by Iraq on the purchase of drugs and medical appliances alone for the public and the private sectors in 1989 was $US 360 million. It was estimated during the mission that, apart from refugee relief operations, humanitarian organizations had provided drugs and medical supplies to Iraq for a total value of less than $US 50 million in 1991. This leaves a large gap that is most unlikely to be bridged by any international aid during this year. Although medicine is exempted from the United Nations sanctions, there are at present payment problems for such imports owing to the freezing of Iraq's assets abroad, restrictive trading arrangements and the prohibition on the export of oil.

68. The mission concluded that there was currently no major problem regarding the availability of health personnel in Iraq. After a period that saw a decline in the total number of health staff owing to military mobilization, population displacement in the north and south and, to a lesser extent, the departure of expatriate employees, the situation is now close to that prevailing before August 1990.

69. In the health personnel development area, in-service short courses had taken place in certain governorates on such topics as diarrhoeal diseases or immunization, but training abroad was no longer possible. The effects of this will not show immediately but it is urgent that opportunities for training abroad be restored.

70. Regarding access to health care, in 1986 it was estimated that 97 per cent and 78 per cent of urban and rural populations respectively had access to health services. At present, considerable regional variations can be noted in the degree to which population groups have access to health care. However, overall, the compound effects of lack of transport, population displacement, reduced capacity of government health facilities and the impossibility for many families to afford services from the private sector is reducing the access to health services of many people, especially the most vulnerable groups.

71. Because of the particularly precarious state of health of populations returning from the Islamic Republic of Iran and Turkey, special attention must be given to medical infrastructure and programmes in areas where returnees are

concentrating. To address this situation, the emphasis has been put on re-establishing the normal structures where these have been damaged or destroyed and on restoring health networks such as those for drug distribution.

72. The mission did not find any evidence that medium- to long-term contingency plans had been worked out for the health sector to respond to the fast evolving situation. It was clear however that adjustments were made periodically as new challenges were being faced and that in the prevailing context of uncertainties and fears, these adjustments were understood, endorsed and implemented by dedicated health staff.

73. The utilization by the public of medical-care services is also being confronted with increasing difficulties. In recent years, there has been an easy access to government services, which were provided free of cost, and to affordable private medical services. Thus, according to government statistics, the per capita expenditure by private citizens on medical services and health care was relatively low: 1.6 per cent of total expenditures. Virtually all physicians have a private practice, which often yields an income in one day equivalent to their monthly government salary. Reportedly, in 1990 the country was equipped with 31,000 beds in government hospitals and health centres, supplemented by 9,000 beds offered by the private sector. These figures are illustrative of a system that relied on a combination of two sub-systems (public and private), which was deemed adequate to meet the needs. The war, the ensuing civil disturbances and the shortage of external supplies had a direct impact on the coverage and quality of care.

74. The displacement of large population groups, the lack of transport and the chaotic situation prevailing in hospitals and health centres during the first six months of 1991 resulted in severe disturbances in the patients' referral system. Many health centres being temporarily closed, a major influx of patients came directly to hospitals already overloaded with casualties, understaffed and deprived of water and electricity.

75. The lack of energy supply resulted, for example, in the shutting down of at least two haemodialysis departments. In Mosul, 28 of the 50 patients who were on artificial kidneys in early 1991 reportedly died as lack of electricity and water prevented the machinery from functioning. In Basra, 17 patients died for the same reason. In surgical departments, the shortage of anaesthetic drugs, dispensable equipment, electricity and water had led hospital authorities to limit surgical interventions to emergencies only. Elective surgery was postponed indefinitely. Patients suffering from chronic metabolic diseases or cancer were affected by the lack of drugs and the reduced capability of the health system to provide biomedical monitoring.

76. The foreign exchange needed to cover the costs of the imports required for one year of operation of the health sector would be an estimated $US 360 million for finished drugs, vaccines, medical appliances and disposable supplies; $US 100 million for raw materials needed to sustain the local pharmaceutical production; $US 10 million for ambulance and liaison vehicles; $US 30 million for the replacement and maintenance of critical

health service equipment, including generators and medical, surgical, dental, laboratory, X-ray and other diagnostic apparatus. Therefore, the total requirement, which should be revised periodically as the situation evolves, would be in the region of $US 500 million.

77. The mission held extensive discussions with medical, surgical and nursing staff on the need to apply appropriate case management more systematically. These discussions led to the general conclusion that additional strategy planning and retraining could help to cope better with the evolving situation but that the impact of these measures would only be marginal.

78. Common communicable diseases of major public health importance in Iraq are closely associated with environmental sanitation. As water supply is deficient in both quality and quantity and services for waste disposal are severely reduced, the country has experienced an increased incidence of cholera and typhoid. By way of example, in five governorates visited, the reported diarrhoeal cases among children under five years of age were over 26,000 and 77,000 for May 1990 and 1991 respectively, representing a threefold increase. For typhoid, the total figures for May 1990 and 1991 were 98 and 230 respectively, a more than twofold increase. Because of disruption in the reporting and surveillance system, the 1991 figures no doubt represent only a fraction of the actual incidence of these diseases.

79. Emphasis should be put on public health programmes with a strong training component in environmental sanitation. This is particularly true of areas where refugees from Turkey and the Islamic Republic of Iran are returning, and where a dramatic increase in water-borne diseases has been noted.

80. A WHO mission examined the malaria situation in May 1991 and concluded that the incidence of the disease remained low, although the risk of its spreading was aggravated by the shortage of insecticides and spraying equipment and by the expected return of refugees from areas of higher endemicity.

81. In all the governorates visited, the mission was informed of shortages of reagents for laboratory diagnosis, even for common and life-threatening communicable diseases, and of the essential drugs for their treatment. The capacity of the national health authorities to respond quickly to epidemics has been compromised because of communications difficulties (especially telephone and electronic communications). All in all, the indications are that, without an immediate improvement in the situation, communicable diseases will take a heavy toll on the Iraqi population.

82. Immunization, an important element of the maternal and child health (MCH) programme, requires an effective cold-chain, regular supplies of vaccines and systematic follow-up on children during their first year. The war and civil disturbances severely affected these elements. The lack of electric power, the shortage of vaccines (all imported) and population displacements led to a complete halt in immunization activities between January and April 1991. The mission found that immunization had gradually restarted in many health centres

but that in many places vaccines were periodically lacking, the cold-chain had not been fully restored, the staff were unfamiliar with some newly supplied kerosene refrigerators and the immunization sessions were deficient in educational components.

83. A second area of emphasis in MCH is the prevention and control of diarrhoeal diseases. Diarrhoea took a heavy toll among the children of displaced populations and among those who no longer had access to safe drinking water supply. Oral rehydration therapy (ORT), being administered to 71 per cent of diarrhoeal cases in 1990, was in fact rarely observed in health centres or described by a mother whose child was treated for diarrhoea. In hospitals, this method was not widely applied, even among children who were able to drink but were still under intravenous rehydration therapy. By contrast, ORT had been an important and successful feature of mortality reduction among displaced population, particularly among those who had been residing in camps.

84. The remaining two factors relating to MCH care are the food supply for pregnant and lactating women and the emergency supplementary feeding programme for malnourished children. The conflicts have left an estimated 300,000 children below the age of six malnourished. These children, who represent 10 per cent of the total population of their age group, will require roughly 20,000 tons of nutritional support over the next 12 months, including skimmed milk, weaning formulae, sugar and oil. Among pregnant and lactating women, nearly one third are in need of nutritional support, primarily in the form of oil, sugar and dates.

85. The pattern of deliveries in the country used to be such that about 70 per cent of deliveries took place in health institutions. This pattern was reversed during the disturbances as most mothers gave birth at home. No figure on maternal mortality could be estimated for 1991. Visits to health facilities indicated that pregnancy monitoring was being reinstituted but that it was hampered by the lack of laboratory support (haemoglobin) and medicine (vitamin supplements and iron). The outcome of pregnancies among mothers who are currently suffering from stress and undernutrition and are exposed to less hygienic living environments will impose on the health system a need for reinforced pre-, peri- and post-natal care.

86. According to sources available to the mission, malnutrition was not a major public health problem among children in Iraq prior to 1991. Nutrition surveillance and nutrition training were neglected, however. Before the Persian Gulf crisis, although growth charts were used in MCH centres, growth-monitoring was virtually non-existent, health records seldom filed, nutrition education of mothers neglected and consequently weaning and feeding practices of babies frequently inappropriate. The proportion of babies being breast-fed was low and at the age of one year only 20 per cent were still breast-fed.

87. Available studies, conducted after the Persian Gulf war between February and June 1991 have been limited to a small number of children (sample size of

a few hundred), predominantly in MCH centres and hospitals. Those studies indicate a high prevalence of growth retardation and wasting among babies and children. When trends could be found they suggested consistently a deterioration of nutritional indicators in the last three months (April-June 1991).

88. The mission visited paediatric wards and health centres in five governorates in the south and six in the north. Cases of malnutrition were seen in outpatient departments and in paediatric wards with a frequency that varied significantly from one governorate to another and, within the same governorate, from one facility to another. There was clear evidence that severe malnutrition was present in all governorates, it being recognized however that frequency and patterns of malnutrition seen in hospitals were only a reflection, sometimes distorted, of the situation prevailing in rural areas. All the indicators, testimonies, anthropometric measurements, mortality and morbidity data collected consistently pointed to widespread and severe malnutrition in Iraq. The children examined by qualified investigators appeared at the lowest limit of adaptation to a reduced dietary intake.

89. The mission noted the general absence of therapeutic feeding centres in the country and the weakness of supplementary feeding centres, which were too often short of food supplies. Feeding centres should now be established in all governorates in order to take care of children needing therapeutic and supplementary feeding. In creating these centres and deciding on their location, account should be taken of vulnerable children already present in Iraq but also of those now in refugee camps in the Islamic Republic of Iran, who are about to be brought back.

90. A concern of the mission was the wide availability and use of feeding bottles, which were exposing children to frequent diarrhoea as sterilization was generally not carried out, dilution was inadequate and milk reconstitution undertaken with unsafe water. Several factors were reported to have increased the use of feeding bottles in the country: reported interruption of lactation in mothers exposed to psychological stress and the lack of alternate weaning or supplementary food. The mission agreed with many paediatricians met during the visit that active education of mothers and attempts to diversify weaning foods should receive high priority and lead to a drastic reduction in the distribution of feeding bottles.

91. In view of the assessed risk of an abrupt food shortage before December 1991 and a rapid deterioration of the nutritional situation, the mission recommends the creation of a national nutritional surveillance system. MCH centres could start immediately to record anthropometric and other early warning indicators.

92. In summary, in the past year the availability and quality of health care in Iraq has greatly deteriorated. The mission therefore recommends that:

(a) It is imperative that the provision of drugs, vaccines, supplies and medical, surgical, dental and diagnostic equipment from outside Iraq be substantially and quickly resumed;

(b) Provision should be made urgently to restore water and power supplies to medical, surgical and such social institutions as rehabilitation centres for the handicapped, through the procurement of pumps, generators and other needed appliances and spare parts;

(c) The fleet of vehicles for the transport of patients and of medical supplies and for ensuring liaison within the health network should be re-equipped through the renewed provision of spare parts and new ambulances and services vehicles. As certain maintenance and repair operations need the services of firms from abroad, arrangements should be made for such services to recommence;

(d) The foreign exchange required to cover the above costs would probably be an estimated $US 500 million for a one-year period. This estimate should be revised periodically as the situation evolves. Funds of this size would have to come from the national resources of Iraq, as it is unlikely in the present world situation that international humanitarian aid would be able to meet needs of this magnitude. Mechanisms should, therefore, be put in place for Iraq to use its own funds to provide for the health care of its people;

(e) To support the nutritional needs of malnourished children and pregnant and lactating mothers, mechanisms would need to be put into place to permit the importation of necessary foodstuffs. The estimated cost for the provision of this support over a 12-month period is $US 53 million, of which $US 40 million is to cover aid to pregnant and lactating mothers, and $US 13 million is to go to the emergency supplementary feeding programme for malnourished children;

(f) In the meantime, to avoid a general collapse of Iraq's health services and in view of the deteriorating food situation, urgent arrangements should be made to enable the country to use some of its own resources. For the last four months of 1991, the needs would be $US 167 million for medical supplies and equipment and $US 18 million for supplementary foods for mothers and children.

93. Noting that the above needs be examined in a humanitarian spirit, the mission also wished to establish that the prolonged dependency of Iraq on insufficient international aid to the health sector is contrary to health ethics. Furthermore, the principle of equity is challenged by a situation in which health care is less and less accessible to, and affordable by, all; national self-reliance in generating and deciding on the use of resources is replaced by dependency on meagre donations; and sustainability in the availability and quality of care is jeopardized by responses to emergencies that have to be made on an ad hoc basis.

C. Food sector

94. The rapidly deteriorating food supply situation has brought the Iraqi people to the brink of a severe famine. The nutritional situation of the population continues to deteriorate, with high incidence of malnutrition. Present food rations provided by the Government at subsidized prices cover about one third of the actual consumption levels in recent years. To meet their minimum requirements, people therefore have to purchase substantial quantities of food at exorbitant market prices which are beyond the reach of the majority of the population. Moreover, Iraq, which used to utilize several million workers from abroad to cope with the labour shortages, is now facing growing unemployment problems among its own population. There is a major increase in the number of destitute people who cannot be absorbed into the State support system for lack of government funds. This year's domestic food output has been substantially reduced as a result of a number of adverse factors. The outlook for the 1991/92 season is even more gloomy. Unless immediate steps are taken, output in 1991/92 will drop drastically, causing further deterioration in the already grave food supply situation.

95. The mission conducted independent market surveys in 16 out of the 18 governorates. They found that for some food items, prices had declined from their peak levels of March 1991. This was mainly due to the resumption of fuel supplies for the domestic market in early May and the arrival of the new cereal harvest on the market. However, prices for all food items remain many times higher than their corresponding levels of last year. Compared to the same time last year, current prices are higher by 48 times for wheat flour, 22 times for rice, 12 times for lentils, 21 times for sugar, 7 times for local cheese, 20 times for vegetable oil, 3 times for fish, 2 times for red meat, 4 times for eggs, 19 times for milk powder, 19 times for tea and 4 times for potatoes, while poultry meat is not available any more (see appendix I).

96. Before September 1990, the Ministry of Trade was distributing 343,000 tons of basic food commodities monthly. Supply shortages brought this figure down to 182,000 tons per month between September and December 1990, and thereafter to 135,500 tons per month. However, certain commodities such as lentils, tea and dried milk either disappeared completely from the ration as they were unavailable or were severely restricted to certain beneficiary categories (e.g. milk for children under one year of age). In May, June and July 1991, some improvements (except for tea) in the scale per person per month were recorded, mainly in the cereal ration. The nutritional value of the commodities actually available between September 1990 and July 1991 through the food rationing system (per person/per day) has fluctuated between 894 k/cal and 1,318 k/cal (see appendix II). The cost of the full monthly ration, excluding lentils and milk was, in July 1991, 10.632 Iraqi dinars per family of six, which is the average family size in Iraq. The mission was assured throughout its extensive field inquiries that the rationing system was available to all (except for areas not accessible to the government distribution network); delays in supplies were however most common in governorates further away from Baghdad.

97. The mission noted the July 1991 average wages/salaries range from 80 dinars per month for a labourer to 250 dinars for a director of a government department. At these levels, and even assuming more than one wage earner per family (not common bearing in mind extremely high post-war unemployment) it is clearly not possible for the average family to ever achieve this level of consumption. At best, families would supplement their rationing system allowances on an ad hoc basis but nowhere near the adequate nutritional intake levels. Moreover, if the ration scale were to take account of the need for fresh foods, the average family food cost per month would be 1,063.242 dinars, a 191 per cent increase over the largely limited carbohydrate diet, comprising only the basic foods.

98. Mission inquiries in the field covering most provincial capitals confirmed the above analysis and showed that whilst the government rationing system is generally supplied with basic commodities, these arrive often late in the month, forcing families to resort to the free market. The number of people seeking "destitute" status has increased considerably in every governorate. The normal ration-system beneficiaries were applying to destitute feeding centres for allocation of free food. There was evidence of disposal of personal property and jewellery to generate income for food purchases. Families interviewed claimed that to achieve an adequate nutrition level they would need to spend an average of 600 dinars per month - a figure clearly beyond the reach of most Iraqis. The recent reports published (ICRC, UNICEF, Harvard University, etc.) indicate a considerable deterioration of the nutritional status of the population; admission figures of malnutrition cases in paediatric wards of hospitals appear to be on the increase. The mission considers the above indicators as a clear warning of an impending major famine.

99. To alleviate the impact of the United Nations embargo on national food supplies, the Government implemented in late 1990 a number of incentives to boost food production. These included substantial increase in government procurement prices for cereals; for instance the procurement price for barley was increased from 280 dinars per ton in 1990 to 500 dinars in 1991; wheat price was raised from 400 dinars per ton to 700-800 dinars per ton in 1991 (depending on quality). Farmers were provided with liberal supplies of seed, diverted from the public rationing system, and the cultivation of wheat and barley crops was introduced to new areas. These measures led to a sharp increase in area planted with wheat and barley.

100. To evaluate the outcome of the 1991 cereal/food crop harvest, the mission carried out extensive field surveys in 16 governorates that normally account for some 95 per cent of the national food crop production (see appendix III). It concluded that, despite a 50 per cent increase in the area planted, this year's cereal output has been sharply reduced as a result of the breakdown of irrigation and drainage systems, acute shortage of essential inputs and disruption of farming activities due to war and civil strife. The adverse impact of these factors was further compounded by erratic and insufficient rains particularly in the main cereal-producing areas in the north where the bulk of production depends on rainfall. In several areas "black rain" in March adversely affected pollination and yields. Serious infestation with

sunn pest occurred in the northern areas; with FAO assistance some 96,000 hectares were treated, but substantial infested areas could not be treated for lack of pesticides. There were also unconfirmed reports of the presence of locust larvae in some areas. Military activities had also resulted in the destruction of crops in several areas. Over 50 per cent of the farm machinery has been found to be out of service owing to shortages of spare parts, particularly tyres and batteries. In many areas, particularly in the south, transportation of farm inputs was constrained owing to the destruction of bridges during the war. As a consequence, total crop failures occurred on a substantial proportion of the areas planted, while extremely low yields were obtained from the areas harvested.

101. The mission estimates the aggregate cereal harvest in 1991 at 1.25 million tons, about a third of last year's record harvest and close to the poorest crop in 1984 (see appendix IV). Other crops, such as vegetables, oilseeds, pulses and fruit, also suffered serious losses owing to the above-mentioned factors. The livestock and poultry subsectors have been severely hurt. The poultry subsector, which produced 2 billion eggs and 250,000 tons of poultry meat in 1989, has been decimated. The livestock numbers have been virtually halved from pre-war levels of 10 million and the declining trend continues at a fast rate. Lack of feed, aggravated by the diversion of barley to food use, and unavailability of veterinary drugs have resulted in increased mortality and slaughter rates. Moreover, attractive prices across the borders have encouraged migration of cattle, particularly sheep and goats, to the neighbouring countries, mainly to Saudi Arabia and Turkey. Large flocks were also taken across the border by Iraqi refugees during the civil strife. The fisheries subsector has also suffered severe losses mainly owing to lack of feed and refrigeration facilities as a result of the breakdown of power supplies. The forest wealth of the country has also been affected owing to massive cutting of trees in many areas.

102. The outlook for the 1991/92 cropping season is even more gloomy. Whatever small stocks of fertilizers and insecticides were available were used up for the 1990/91 crops, and little supplies are now available for the coming season. Seed supplies are extremely short and for vegetables virtually non-existent. A large part of the agricultural machinery power is out of service for lack of spare parts. Irrigation difficulties continue owing to excessive load shedding in many areas, lack of spare parts for irrigation pumps and damage to water reservoirs. The livestock numbers are declining for lack of feed, vaccines and an active informal trade across the borders. The revival of the poultry production has to start from scratch. Unless immediate steps are taken, domestic food output in 1991-1992 will fall further from its already poor level, causing further deterioration in the already grave food supply situation. The mission estimates the essential rehabilitation costs for the 1991/92 cropping season at $US 500,000 (see appendix V).

103. The mission noted that, in exceptionally good years, domestic food production in Iraq accounts for 30 to 35 per cent of total food requirements, the remainder being covered by food imports, costing over $US 2 billion annually. Following the exceptionally poor food output inside Iraq in 1990/91

as a result of the combined effect of adverse factors mentioned above, the country's import needs for basic food are forecast to increase substantially in 1991-1992 (July-June). The mission estimates that Iraq will need to import 7.5 million tons of food in 1991-1992 (July-June) to feed its population of 18.7 million at an estimated cost of $US 2.6 billion. This is clearly a substantial amount that cannot possibly be funded by the international community and would therefore have to be borne by Iraq itself.

104. Largely as a result of considerations such as these, the United Nations system proposed, both in the report prepared by Under-Secretary-General Martti Ahtisaari (S/22366, annex) and in subsequent appeals by the Secretary-General and his Executive Delegate, the organization of food assistance programmes targeted at specific beneficiary groups throughout the country. The mission can confirm that the general situation with regard to the population's nutritional requirements has continued to deteriorate, the small increases in the rationing system supplies being (a) insufficient to compensate for energy losses suffered during the several months of extremely low ration level distributions and (b) inadequate in themselves to raise the current allowances to satisfactory standards. There is therefore a continuing need to maintain the vulnerable group feeding programme to take account of the increase in the number of destitute people.

105. The mission also travelled extensively to the affected areas and reviewed the situation of the Kurdish population which sought refuge outside Iraq in February/March 1991. There are considerable differences between regions, with the north-west, under the control of the forces of States cooperating with Kuwait for the past several weeks, having returned to near-normal conditions and the north-east and east of the country undergoing a steady daily flow of returnees back home through several crossing points on the border with the Islamic Republic of Iran. The major preoccupation are their feeding needs and the uncertainty with regard to the duration of assistance for those who have settled in tents and other temporary structures on the ruins of their demolished villages. For these latter populations, their reintegration into the State rationing system will clearly depend on re-establishment of the food distribution network in settlements that do not exist anymore. On the other hand, for those returnees to towns and villages that do exist, whether under government control or not, the external food aid would be needed only temporarily until normal conditions are re-established.

106. The mission's attention was also drawn to the difficulties faced by the internally displaced population that sought refuge from civil strife in the south of Iraq. They require temporary food support upon their return and until properly reintegrated in the internal rationing and distribution network. Pending the return to a normal marketing and distribution network that can guarantee access to food at reasonable prices to all, international food assistance will have to remain the cornerstone of the United Nations programme in Iraq. Such food aid should continue to be provided as at present through WFP under arrangements with the Ministries of Labour and Social Affairs and Health as well as directly with UNHCR with regard to the internally displaced and returnee feeding operations.

107. At the current level of food supplies, the Iraqi population is fast approaching the threshold of extreme deprivation except for the very few who can still afford to complement the food rationing system distribution by purchases in the free market. With the prospect of a major famine, the international humanitarian assistance programme can only be a palliative of short-term duration and this only on condition that it be underwritten by the donor community. On the other hand, it is evident that the Iraqi Government could afford, as it has done in the past, to import its food needs and so satisfy the largely unmet demand, by increasing the supplies through the rationing system or abandoning the rationing altogether but maintaining a heavily subsidized price structure for the basic food commodities. At the same time there is an urgent need to rehabilitate the agriculture sector to enable it to restore its traditional one-third contribution to national food requirements and to maintain the employment in this sector at pre-war levels.

108. The mission recommends the following actions:

(a) Suitable arrangements should be urgently worked out to enable Iraq to finance the purchase of its basic food imports for 1991-1992 (July-June) at an estimated cost of $US 2.64 billion and the essential agricultural import needs for the next cropping season, estimated at $US 0.5 billion;

(b) In the meantime the current food assistance programme will need to be extended to 31 December 1991; it must to cover the vulnerable groups including a large number of destitute people, returning refugees and the internally displaced persons. The quantity of food to be delivered between 16 July and 31 December 1991 is estimated at 81,723 tons, valued at $US 34,835,065.

D. Energy

1. Electric power

109. Electricity is a basic need in Iraq because water supply, health services, sanitation handling, irrigation pumping, food manufacturing and processing and most services depend on electric power as the source of energy. The country's high degree of urbanization and high temperatures requiring space cooling further aggravate this need for electricity.

110. The war's damage to the power system facilities and the impact on the electricity supply was assessed during a field visit by the energy mission, extending from the Basra area in the south to the Mosul area in the north. It included visits to 15 power-generating plants and many 400 KV and 132 KV transmission substations. The facilities and headquarters of the Baghdad Water Authority were also visited to determine the linkage between power supply and the quantity and quality of water supply, and the power requirements for sewage.

111. Iraq's power system was severely damaged during the war, particularly the generating plants, and restoration will cost at least $US 12 billion. The

installed capacity is of three types: steam plants to provide base-load supply; gas turbines for mid-range and peaking duty; and hydropower for varying services depending on water availability. The important steam plants required for sustained electricity supply were very severely damaged, varying from total destruction in the case of the 800 MW Hartha plant in the south and the 250 MW Dibis (steam/gas turbine) plant in the north, to 75 per cent destruction at the 1,200 MW Musayeb plant in the south and several plants in the Baghdad area. Gas turbine plants were 80 per cent destroyed. To prevent flooding if dams were destroyed the hydropower reservoirs had been lowered below minimum levels before the war, and now only limited hydroelectric energy is available, even when the units are operable.

112. The war came close to completely destroying the power system. In the 800 MW Nasariyah steam plant a special bomb or rocket penetrated the concrete substructure of the cooling water intake, flooding the basement and all pump motors. One motor was salvaged, but without cooling no output would be possible. Similarly, three of the four surge tanks at Saddam Dam hydroelectric plant were pierced by rockets, seriously affecting plant operations. Powerhouse cranes are critical because they are required for repairs and several were destroyed. At the Baiji steam plant, bombing resulted in the crane falling to the turbine hall floor, between two units. At Samawa hydroelectric plant the gantry crane was demolished and collapsed on one unit, so early plant restoration is impossible. The critical control rooms, substation protection buildings and spare parts storage areas were hit at almost all locations. This has resulted in long delays in any restoration work. The vital Mosul 400 KV substation serves as a major hub for five 400 KV lines and fourteen 132 KV lines, in addition to providing 1,000 MVA of 400/132 KV stepdown transformation to supply area loads. At this station the special gas-insulated 400 KV switchgear was damaged severely and all transformers were destroyed, so the station is still out of service. Supply to the Mosul area from Saddam Dam in the north has to be routed to Mosul via a single 400 KV line to Baiji plant (to the south) and return. The degree of destruction is shown by the condition of transmission facilities in the south. Ground forces destroyed fifty-seven 400 KV towers on the Basra to Nasariyah transmission line and wrecked 132 KV substation facilities at New Rumaila and its satellite stations, which normally provide power supply for oil production facilities in the area.

113. The pre-war generating capacity totalled over 9,500 MW while at the end of the war the available capacity was negligible. Since then, the electric utility management, engineers and staff have done a major job of restoring those generating units and transmission facilities that could be salvaged using ingenious makeshift arrangements and any available resources, including cannibalizing damaged units, using all spare parts, and searching out equipment in the local market. The Nasariyah steam plant was equipped with closed-circuit cooling towers with water from the Euphrates River serving only to make up for losses. All cooling towers were lost by bombing so the cooling system was converted to a once-through cooling of the condensers using river water. This involved a major civil and mechanical engineering project involving changing of 2-metre-diameter cooling lines. At the same plant all

auxiliary pipes and control cables were destroyed and had to be reinstalled. Today two of the four Nasariyah units are in operation. However, these units are vulnerable to river silt blocking of the condensers at any time. At the Taji gas turbine plant, five of the seven gas turbines and all stepup transformers were destroyed, so partial output from the remaining two gas turbines is being supplied to the system using mobile transformers. The total destruction of the Dibis power plant also cut off electricity supply to the area including water pumping loads at the city of Kirkuk and the intermediate towns. One 132 KV line and temporary transformers have been arranged to provide partial power supply in the Dibis-Kirkuk area.

114. The pre-war generating capability of 9,552 MW was reduced to an available capacity on 1 July 1991 of 2,325 MW or 25 per cent (see appendix VIII). Almost one half of the original 128 generating units are in operation but with substantial capacity reductions. The total available capacity will probably decline for lack of spare parts and maintenance. Furthermore, no additional capacity can be restored without spare parts and technical assistance. The transmission and distribution facilities generally survived the war with a larger amount of the pre-war facilities, about 75 per cent, than did generation facilities, because transmission and distribution facilities are not concentrated targets. However, only about 40 per cent of the original 400 KV facilities are available because these were a prime target.

115. It is important to recognize that the present restoration work is only a short-term solution. Many of the existing units, particularly the old ones, will soon either fail or will be shut down as obsolete. The plants that can be counted on for the long term are the existing hydropower plants, appropriately restored, totalling about 2,500 MW, and, when restored, the Baiji, Dora and Musayeb steam plants totalling about 3,000 MW. This 5,500 MW of capacity is still short of the required 7,500 MW to meet the 1990 load level plus a typical 50 per cent reserve. So new capacity must be built immediately. In the meantime, the cost over the next year of providing spare parts, restoring to service about 2,300 MW of the existing generating units, and returning to service 15 per cent more of the transmission and distribution facilities, is estimated at $US 2.2 billion (see appendix IX). To put this amount in perspective, the replacement cost of the complete Iraqi power system is $US 20 billion and annual spare part and maintenance requirements are 3 to 4 per cent of the investment cost. So $US 2.2 billion equals about three years of maintenance. If the existing capacity can be retained in operation and other units can be restored to service, this would still provide only about one half of the pre-war generating capacity.

116. The fragile electricity supply is frequently interrupted at the supply end by unit breakdowns and at the consumer end by feeder switching. So service is only six to eight hours each day in urban areas. Water treatment plants are particularly hard hit because intermittent service means continuing pressure changes. Baghdad Water Authority is receiving only 50 MW of power while in 1990 it received 150 MW. As a result, most of its available power is being used for water supply. The sewage is not being pumped and is gathering, overflowing into the river, and even infiltrating the water system. The Water

Authority is trying to find standby generators to pump sewage, as an alternative to the public electricity system.

117. The limited supply of electricity, particularly in the rural areas, is demonstrated by the results of a July 1991 UNICEF survey of the availability of electricity for water pumping in the Acqra district of the Mosul Governorate. In a sample of 194 villages and towns having a total population of 184,000, 192 villages or 99 per cent of the villages had public electricity supply. A typical village had electricity supply only three hours per day because the supply was rotated by switching feeders.

118. In all areas of the power system, power production will certainly be reduced owing to the hazardous condition and mode of operation of equipment, the lack of maintenance and absence of spare parts. This is certainly the case for all the generating plants and those substations that have been repaired under emergency conditions that required using measures that are far short of normal technical standards. For instance, Saddam Dam output of 100 MW will be interrupted if one circuit breaker fails. Similarly, at the Nasariyah steam plant 300 MW output will be lost if one air compressor or one cooling water pump or one water treatment pump fails. In every plant there are examples of risky emergency repairs, without adequate or sometimes any protection, resulting in critical situations that put the complete installation at risk in cases of failure. These risks are being increased as time progresses without any maintenance. This is particularly critical for gas turbines now operating on a continuous basis without the normally required maintenance inspections. Critical also is the old Najibiya steam plant near Basra, which was obsolete and shut down before the war, but now is being operated in a very dangerous condition.

119. In conclusion, unless additional capacity can be placed in service, the overall power-generating capacity will certainly be reduced in the coming months. Moreover, if some critical components of these plants fail there is high risk of loss to the system of either the complete plant or at least a large unit. The consequences of such risks are very high during the peak demand months of July, August and September.

120. Under the present circumstances and the pressing power needs, there is no alternative but to find immediate solutions to maintain service, even though these may not be cost-effective in the long term, particularly since much of the restoration has been achieved by cannibalization and without adequate protection systems. Meanwhile, the following actions are recommended by the energy mission:

(a) The execution of the prepaid orders that were placed with foreign contractors before the war and the delivery of parts and technical assistance should be allowed;

(b) The present situation at the operating power plants should be consolidated by allowing spare parts and related technical services to be ordered and delivered;

(c) Import of goods and services should be allowed for the restoration of sources of additional capacity such as the No. 3 unit at Musayeb steam plant;

(d) Expenditure of national funds should be allowed to cover a six-month requirement for (a) to (c) above, totalling $US 0.7 billion.

2. Oil

121. The following provides information on the three main components of the oil sector: oil production; pipelines; and refineries. This assessment relies essentially on the information given by the Ministry of Oil. The mission could not check all this information but it is considered to be generally reliable. A field visit to the Dora refinery has confirmed the information given for that plant at the level of the Ministry.

122. Iraq's oil production capacity before the Persian Gulf war was 1.3 million barrels per day in the northern fields (Kirkuk and others) and 2.2 million barrels per day in the southern fields (North and South Rumaila, Zubair, Lahis). Iraq's quota under the Organization of Petroleum Exporting Countries (OPEC) is 3.14 million barrels per day while its domestic requirements are 0.45 million barrels per day.

123. During the Persian Gulf war, the southern oil field facilities were severely damaged. Oil production there is assessed to be very low. The northern facilities were less damaged during the war, but they apparently suffered some damage during the civil conflict in March 1991. The total national oil production capacity is now estimated at 1.455 million barrels per day. Taking into account Iraq's internal consumption requirements, the oil production available for export is estimated at 1 million barrels per day. This translates into a potential revenue of $US 5.5 billion over a one-year period, at a market price of $US 15 per barrel.

124. The Ministry of Oil considers that production capacity could be raised to 1.6 million barrels per day by the end of 1991 and to the pre-war level of 3.14 million barrels per day by mid-1992. These forecasts presume that the Government can import the necessary items to rehabilitate the production facilities. In any case, these forecasts seem rather optimistic and the mission does not expect a full rehabilitation of the production capacity before the end of 1992 at the earliest, assuming the lifting of the sanctions on import of needed materials.

125. Regarding pipelines, the main outlets for oil are the two pipelines through Turkey (IT 1 and IT 2). They have a potential volume of 1.590 million barrels per day, but are now estimated to be functioning at 1.340 million barrels per day because of the destruction of a pumping station. The Al Bakkar terminal in the Persian Gulf, with a potential pumping capacity of 1 million barrels per day, is not in operation now. The pipeline linking the Rumaila fields to the east-west Saudi pipeline going to Yanbu is idle at this moment. Its capacity before the war was 1 65 million barrels per day. To put

it in service, the Iraqis must rebuild a compression station located in Iraq that was destroyed during the war and agree with the Saudi Arabian authorities on the use of the pipeline.

126. The Ministry of Oil has the necessary technical expertise available in-country to restore the lines through Turkey into full service, but it lacks the necessary parts. It may need some foreign technical assistance for work on the Al Bakkar terminal or for accelerating the rehabilitation programme overall, if they are given the possibility of obtaining such foreign assistance. For the next coming months, it appears that, while the addition of some spare parts would be useful, there is little risk of pipeline capacity dropping below the current capacity of 1 million barrels per day.

127. The current production levels at Iraq's three refineries are:

Baiji	300 000 bl/d
Dora	90 000 bl/d
Basra	70 000 bl/d
Total	460 000 bl/d

128. The total pre-Persian Gulf war refining capacity was 700,000 barrels per day. The Basra refinery has undergone the most severe damage, and only one out of two trains is now producing. All three refineries are simple hydroskimming; however the Baiji refinery also has hydrocracking. Repair operations have been made possible by heavy drawdown on spare refining equipment, including frequent cannibalization operations. This situation makes the reliability of the present refinery operations low. The final products in the market are of low quality. Additives needed for the production of refined products are in short supply. The distribution network has also been damaged, as well as pumping stations and storage tanks. The security of supply is thus gradually decreasing as long as no spare parts are available.

129. In summary, spare parts and additives are both needed to keep up the present level of oil production, pipeline operations and refinery operations. In order to increase production to the pre-war level, extensive repairs and rebuilding would have to take place, particularly in the Basra area. The costs of such a full restoration of the oil sector is estimated at approximately $US 6 billion over a two-year period. The mission therefore recommends that Iraq be allowed to import $US 3 billion worth of spare parts and consumable materials over a one-year period, or at least $US 1 billion for an initial four-month period.

IV. CONCLUDING REMARKS

130. None of us on the mission team could overlook a glaring paradox: at a time when the international community is beset with disasters of daunting dimensions around the globe, we continue to appeal to the same donors to fund emergency programmes in Iraq that the country could pay for itself. With considerable oil reserves in the ground, Iraq should not have to compete for scarce aid funds with a famine-ravaged Horn of Africa, with a cyclone-hit Bangladesh.

131. We saw with our own eyes the scenes already reported at length: the raw sewage pouring into the Tigris and the Euphrates, the children afflicted by malnutrition. Our report is inevitably but a photograph in time, fast obsolete, yet the urgency of relief from suffering remains. Further, the hard statistics speak for themselves. Conditions are already grave in all of the essential sectors assessed and can only worsen in the weeks ahead. We must achieve a breakthrough to avert the looming crisis.

132. We have not set our sights on the optimum but no doubt unrealistic goal of full restoration of services to pre-war levels. We have not even aimed at funding for a full year. Instead, more modest objectives for the key sectors, for a limited initial four-month period (September to December 1991), have been quantified. Essential civilian needs must be assured for this immediate future.

133. To fund even this partial endeavour is far beyond the capacity of the United Nations system. Nor should the resources emanate exclusively from international programmes, given the dictates of common sense and of solidarity with those needs elsewhere I referred to above. Iraq's own national resources, whether material or human, must obviously be put to good use.

134. The mandate assigned to me as the Secretary-General's Executive Delegate is of a humanitarian nature: political determinations are not in my purview. Indeed, we have consistently focused upon the needs of the most vulnerable groups, wherever they may be identified and located throughout the country. The United Nations presence in Iraq, which for the purposes of our operation has been managed through United Nations humanitarian centres with their accompanying complement of United Nations guards, has monitored and reported on the provision of humanitarian assistance and advised the authorities in this respect. This will continue to constitute a major priority. The right to food, water, shelter and adequate health care are amongst the most fundamental of all human rights and must be assured to all people in all areas. As with all the key rights and freedoms set out in the Universal Declaration of Human Rights and the International Covenants, there can be no discrimination whatsoever in their enjoyment. Due note was taken, during our stay in Iraq, of the authorities' declared objective of fostering the democratic process, with its intrinsic attributes of political pluralism and freedom of the press. The present negotiations with the Kurdish leadership were cited as an example of this trend.

135. Events of earlier years and, more recently, the civil strife that followed the Persian Gulf war, brought harmful consequences for vulnerable groups, for displaced populations, which must continue to be redressed. Those affected must be reassured and encouraged to return to their homes. The amenities so commendably accorded to those involved in the civil unrest must be extended. Where mines have been sown as indiscriminate seeds of death around refugees' home regions, they must be detected and removed. Where original habitats have been destroyed, they must be rebuilt: this is particularly true of the Kurdish villages and towns that had been razed in previous years. It takes on an added urgency with the approach of winter. Indeed, massive transformations inflicted upon the human and natural environment in any region are unacceptable and can only be injurious to all concerned in the long term.

136. The creation of confidence, which is sadly lacking in some parts of the country, is crucial. It is in the interest of Iraq, of the displaced populations and of the international community. The United Nations presence in the country has welcomed the cooperation it has received from the authorities in pursuing this shared interest. In the coming weeks, as the need to maintain confidence in the equitable distribution of goods and services throughout all segments of the population takes on critical importance, such transparency and cooperation will be essential. We will have to be assured, in particular, of the maximum distribution to the civilian population, whose proportion can indeed only grow as the time of conflict and the militarization of society recedes.

137. This mission has addressed the current humanitarian needs in Iraq and has concluded that their magnitude requires funding that exceeds international aid and short-term palliatives and can be met only from the country's own resources. How this finding is to be reconciled with the Security Council's imposition of sanctions is a determination that is not ours to make. On the basis, however, of our deliberations and meetings with the authorities in Iraq, it would appear feasible to institute arrangements whereby Iraq's requests for imports to meet the needs outlined in this report would be submitted to the United Nations and subjected to appropriate monitoring. The precise mechanism need not be specified here. The formula agreed upon would provide for clear records of all transactions to be furnished to the Organization. Constant accountability would be assured, as would the humanitarian purposes of imports financed by oil sales. As for the question of equitable distribution, a functioning food rationing system is already in place. Other aspects have been mentioned in preceding paragraphs and concern the United Nations presence in the country.

138. It remains a cardinal humanitarian principle that innocent civilians - and above all the most vulnerable - should not be held hostage to events beyond their control. Those already afflicted by war's devastation cannot continue to pay the price of a bitter peace. It is a peace that will also prove to be tenuous if unmet needs breed growing desperation. If new displacements of Iraq's population result from hunger and disease, if relief is again sought across national frontiers, the region's stability will once

more be set at risk with unforeseeable consequences. Humanitarian and political interests converge in the aversion of catastrophe. It is clearly imperative that Iraq's "essential civilian needs" be met urgently and that rapid agreement be secured on the mechanism whereby Iraq's own resources be used to fund them to the satisfaction of the international community.

Appendix I

CHANGES IN PRICES OF ESSENTIAL FOOD ITEMS IN IRAQ

JULY 1990-JULY 1991

(Iraqi dinars per kilogram)

	Wheat flour	Rice	Lentils	Sugar	Local cheese	Veget. oil	Fish	Red meat	Poultry meat	Eggs (30 eggs)	Milk powder	Tea	Potatoes
July 1990	0.060	0.240	0.400	0.200	1.600	0.600	5.000	7.750	3.000	3.600	1.600	2.000	0.500
July 1991	2.873	5.278	4.795	4.289	11.600	12.031	14.357	12.250	NA	14.719	30.818	37.406	2.094
Increase (times July 1990 prices)	48	22	12	21	7	20	3	2	NA	4	19	19	4

Appendix II

K/CAL VALUE OF PER CAPITA DAILY FOOD RATION UNDER THE RATIONING SYSTEM

Commodity	K/cals per 100 grs	1990 Sept./Dec.	Ration level 1991 Jan./April	May	June	July
Wheat flour a/	360	21 600	18 000	21 600	25 200	27 768
Rice	371	5 565	3 710	3 710	3 710	5 565
Vegetable oil	884	4 420	2 210	2 210	2 210	2 210
Lentils	354		not distributed			
Sugar	386	3 860	2 895	3 860	3 860	3 860
Tea	293	293	-	146	146	146
Powdered milk	507		restricted			
Per month		35 738	26 815	31 526	35 126	39 549
Per caput per day		1 191	894	1 051	1 171	1 318

Source: FAO, Food and Nutrition Paper No. 26, Food Composition tables for the Near East (Rome, 1982).

a/ July wheat flour ration is composed of 50 per cent wheat flour, 40 per cent barley meal and 10 per cent maize meal.

Appendix III

MISSION'S OBSERVATIONS ON 1991 CROP PRODUCTION IN IRAQ BASED ON FIELD SURVEYS IN JULY 1991

GOVERNORATE	MAIN FACTORS AFFECTING PRODUCTION IN 1991
1. TA-MEEM	Widespread crop failures and poor yields due to insufficient rainfall, shortages of fertilizers; large areas under wheat and barley could not be harvested owing to civil strife and security problems; 50 per cent of the combine harvesters and tractors out of service for lack of spare parts.
2. SULAIMANIYA	Only small proportion of the area could be harvested due to movement of population to Iranian borders in March and subsequent security problems, wheat crop in some areas destroyed by fire; out of 154 combine harvesters 50 in working condition, 29 stolen; about 70 per cent of 3,860 tractors stolen; delayed and insufficient rainfall.
3. ARBIL	Poor yields due to insufficient rainfall; lack of fertilizers; large areas destroyed as a result of military activities; farming activities disrupted owing to movement of population following civil strife.
4. NINEVEH	Total crop failure on more than one quarter of the areas planted; extremely low yields on other areas for lack of rain; serious sunn pest infestation; shortage of pesticides; fertilizers and machinery.shortages.
5. DOHUK	Rains started three months late; massive movement of population to borders in March; large areas affected by sunn pest as no spraying could be undertaken; out of 128 combine harvesters, 74 stolen; out of 705 tractors, 600 stolen.
6. SALAH AL-DEEN	Crop failure on large part of the area planted due to three months' delay in the start of rains and no rainfall after 25 March; serious shortages of fertilizer, pesticides and no seed available for vegetable cultivation; locust larvae seen in some areas.
7. WASIT	Owing to damage to Kut Dam, irrigation and drainage operations stopped; large areas flooded; crops along Iranian border cannot be harvested owing to security situation. Maize crop rotted in the field owing to security problems.

GOVERNORATE	MAIN FACTORS AFFECTING PRODUCTION IN 1991
8. MAYSAN	Massive crop failures owing to lack of irrigation, serious shortage of fertilizers, pesticides and spare parts.
9. BASRA	Crop failure on bulk of the area planted owing to stoppage of irrigation following power breakdown; black rains affected pollination; disruption of farming activities owing to movement of farmers as a result of civil strife; transportation difficulties owing to destruction of bridges in war. Damage to drainage system.
10. THI QAR	Large-scale crop failures due to breakdown of irrigation system by war; low yields on remainder area owing to military activities, lack of rains and shortages of pesticides.
11. MUTHANA	Stoppage of power supplies affected irrigation to a large proportion of the cultivated area and created flooding and drainage problems. High prices of fuel before May caused widespread damage to Alfa-alfa area.
12. QADISIZA	Serious crop failures due to lack of irrigation supplies. In remaining areas yields exceptionally low as only one irrigation against normal of four could be applied; rice yields also expected to be significantly reduced owing to shortage of irrigation supplies. In remaining areas yields exceptionally low as only one irrigation against normal of four could be applied; rice yields also expected to be significantly reduced owing to shortage of irrigation supplies and farm inputs.
13. BABYLON	A large proportion of land was affected by lack of irrigation owing to breakdown of power supplies; flooding of land caused excessive salinity, black rains affected pollination; serious shortages of seed, fertilizer, and insecticides; date plants affected owing to lack of aerial spraying.
14. NAJAF	Wheat and barley crops affected by shortage of irrigation, fuel and fertilizer; civil strife disrupted farming activities owing to massive movement of population; black rains (three times) reduced pollination. For rice, the main crop, quantity of water not enough as electric supply restored for six to eight hours daily. Planting of rice delayed by two months.

GOVERNORATE	MAIN FACTORS AFFECTING PRODUCTION IN 1991
15. KERBALA	Crop failure on bulk of wheat and barley areas owing to lack of drainage and irrigation; three black rains affected pollination; civil strife disrupted farming activities; date plants sprayed only once manually owing to restrictions on aerial spraying.

Appendix IV

CEREAL PRODUCTION 1989/90 (ACTUAL) AND 1990/91 (FORECAST)

(Area in '000 hectares)

(Production in '000 tons)

CROP	1989/90	1990/91 a/
Wheat		
Area	1 196	2 512
Production	1 196	525
Barley		
Area	1 995	2 389
Production	1 854	520
Rice		
Area	85	88
Production	228	125
Maize		
Area	59	40
Production	185	74
Other grains		
Area	12	8
Production	6	4
TOTAL		
Area	3 348	5 037
Production	3 469	1 248

Source: Ministry of Planning, Central Statistics Organization, Annual Abstract of Statistics 1990.

a/ Mission's forecast.

Appendix V

SUMMARY OF ESSENTIAL AGRICULTURAL NEEDS FOR 1991/92

(In round figures)

Commodity	Quantity (tons)	Value (thousands of dollars)
Fertilizers	300 000	200 000
Seeds	65 000	40 000
Pesticides	7 000	25 000
Veterinary drugs		500
Machinery/spares		175 000
Livestock concentrate	15 000	34 500
Miscellaneous		25 000
	Total	500 000

Appendix VI

BASIC FOOD IMPORT REQUIREMENTS OF IRAQ FOR 1991-1992 (JULY/JUNE)

Basic food	Import requirements a/ (Thousand tons)	Unit price C.I.F. ($US per ton)	Import cost (Millions of dollars)
CEREALS AND PULSES b/			
Wheat	3 616	170	614.7
Rice	695	400	278.0
Barley	560	150	84.0
Maize	387	120	46.4
Pulses	84	500	42.0
POTATOES b/	100	470	47.0
VEGETABLE OIL	350	470	164.5
MEAT AND LIVESTOCK PRODUCTS			
Red meat	150	2 500	375.0
Poultry meat	160	1 500	240.0
Eggs	50	1 390	69.5
Baby milk	72	3 500	252.0
Other milk	600	217	130.2
SUGAR AND SWEETENER	600	300	180.0
TEA	45	2 500	112.5
Total	7 469		2 635.9

a/ Calculated on the basis of per capita requirement based on 1987-1989 averages of utilization minus domestic availability using FAO Food Balance Sheet for Iraq for a projected population of 18.7 million.

b/ Includes, where necessary, provision for seeds, feed, wastage and small replenishments of stocks.

Appendix VII

FOOD ASSISTANCE REQUIREMENTS

Beneficiaries		Requirements	
Category	Number	Feeding period	Person/days feeding
Vulnerable groups a/ b/ (institutions)	80 000	16 July/31 December	13 520 000
Destitute people	600 000	"	101 400 000
Iranian refugees	20 000	"	3 380 000
In transit, Zakho	15 000	"	2 535 000
In destroyed villages north-west	30 000	"	5 070 000
Allowance for migratory movements	80 000	3-months buffer (90 days)	7 200 000
Arbil sector		15 July/31 August	
Returnees	100 000	(47 days)	4 700 000
Anticipated	100 000	1 August/30 September (61 days)	6 100 000
Sulaimaniya sector		15 July/31 August	
Returnees	150 000	(47 days)	7 050 000
Anticipated	150 000	1 August/30 September (61 days)	9 150 000
Allowance for return of balance from the Islamic Republic of Iran	100 000	2 months buffer (60 days)	6 000 000
Internally displaced in southern Iraq	60 000	15 July/31 August (47 days)	2 820 000
Total feeding days			168 925 000

a/ Only orphans, children in kindergartens and mothers and children in MCH centres as well as hospital patients receive dried skim milk, enriched (11,432,850 days at 50 grs).

b/ Apart from orphans, children in kindergartens and mothers and children in MCH centres, all other beneficiaries are entitled to a ration of pulses (232,950,650 days at 40 grs).

Appendix VIII

POWER-GENERATING UNIT STATUS AS OF 1 JULY 1991

Region	Plant	Unit capacity MW	No. of units installed	Total capacity MW	Units put in operation	Total available MW
Northern region	Sadam Dam.					
	P. storage H	100	2	200	0	0
	Reg. scheme H	15	4	60	4	30
	Main scheme H	187.5	4	750	2	230
	Mosul east G	12	4	48	0	0
	Mosul gas G	20	12	240	4	40
	Mulaabdulla G	20	12	240	7	70
	Dibis S	15	4	60	0	0
	Dibis G	35	5	175	2	0
	Dokan H	80	5	400	2	110
	Derbendkhan H	80	3	240	0	0
	Baui S	220	6	1 320	5	900
Central region	Taji G	20	7	140	2	15
	Samarra H	28	3	84	0	0
	Himrin H	25	2	50	1	20
	Qadisiya H	110	6	660	2	60
	Baghdad-S S	55	4	220	0	0
		67.5	2	135	2	50
	Baghdad-S G	27	1	27	0	0
	Sarrafia G	20	1	20	0	10
	Dora S	160	4	640	2	250
	Dora G	35	4	140	4	70
	Hilla G	20	4	80	3	30
	Musayeb S	300	4	1 200	0	0
	N. Baghdad G	17	6	102	1	10
	Najaf G	63	3	189	0	0
Southern region	Nassiriya S	210	4	840	3	300
	Hartha S	200	4	800	0	0
	Khor Ulzubair G	63	4	252	1	30
	Najibia S	100	2	200	2	90
	Shuaiba G	20	2	40	1	10
	Total		128	9 552	50	2 325

Note: Capacity put into operation = 25 per cent.

H = hydro, S = steam, G = gas turbine.

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Appendix IX

SPARE PARTS, MATERIALS, EQUIPMENT AND RESTORATION WORK REQUIRED TO SUSTAIN ELECTRIC SERVICE OVER THE NEXT YEAR

1. The following list represents the minimum requirements to sustain the present level of electric service of about 2,300 MW of generating capacity, to improve the reliability of generation and transmission by normalizing protection systems, to restore transmission facilities to a reasonable level of security, and to start restoration of more of the damaged generating units so that further deterioration in electric service does not occur and some additional supply can be provided.

2. The generation requirements are a combination of providing spare parts, improving the security of units now operating, obtaining materials such as boiler water treatment chemicals to sustain operation, restoring more damaged units to increase the supply, restoring powerhouse cranes so that maintenance can be performed, and increasing the security of the power supply.

		(Millions of dollars)
(a)	Prepaid spare parts	
	Many parts and services are prepaid without having received the goods including Musayeb No. 3 turbine rotor and Khorulzubair gas turbine inner casings	100
(b)	Spare parts and materials	
	All spare parts and most operating materials are consumed and a backlog must be supplied for all equipment including electronic cards, pumps, motors, chemicals, turbine oil, special oils, bearings, turbine blades, etc.	500
(c)	Unit restoration	
	Some units can still be recovered for operation with parts and outside technical assistance, as follows:	
	Restore Samarra hydro (84 MW) with new rotors, windings, transformers, gantry crane, governors	30
	Restore Musayeb No. 3 (300 MW) by complete turbine rebuilding, part replacements, rewiring, etc.	90

	(Millions of dollars)
Restore Baiji steam plant switchyard, powerhouse crane, one unit that has been cannibalized (200 MW)	50
Restore Nasiriyah steam plant cooling system, cannibalized units, auxiliaries, etc. (500 MW)	50
Restore 10 x 20 MW frame 5 gas turbines at Mosul, New Baghdad and Mulaabdulla (200 MW)	20
Restore Dora steam plant No. 4 unit by erecting new stack and replacing cannibalized parts (160 MW)	30
Restore Hadida hydro plant (660 MW) with new 400 KV cables and substation repairs	30
Generation subtotal	900

3. The transmission requirements include the replacement of two major 400 KV switching stations at Mosul and Kirkuk each with 5 x 400 KV and 14 x 132 KV lines and 1,000 MVA of 400/132 KV transformation, plus transmission spares, 400 KV and 132 KV lines, and 132 KV substations.

	(Millions of dollars)
(a) Replace 400 KV substations	
Mosul super grid station with SF6 switchgear	100
Kirkuk super grid station with SF6 switchgear	100
(b) Replace 132 KV substations	
There are 12 damaged 132 KV stepdown stations similar to New Rumaila with 2 x 63 MVA transformers and typically four 132 KV supply lines and 12 outgoing 33 KV feeders	150
(c) Transmission lines	
2,000 km of 400 KV lines suffered about 30 per cent damage; estimate is based on a partial replacement cost of $200,000/km	120

	(Millions of dollars)
2,000 km of 132 KV lines suffered about 30 per cent damage; estimate is based on a partial replacement cost of $100,000/km	60
(d) Transmission spares	
General spares are required including breaker parts, insulators, switches, transformer oil, line hardware, control relays, transformers, bushings, etc.	150
Transmission subtotal	680

4. Many areas of the distribution system were damaged during both the bombing and the civil disturbances.

	(Millions of dollars)
(a) Spares	
All stock of distribution materials has been consumed including conductor, fuses, insulators, cables, reclosers, capacitors, etc.	200
(b) Distribution lines	
10,000 km of 11 KV lines were damaged to about 30 per cent	60
2,000 km of 33 KV lines were damaged to about 30 per cent	12
22,000 km of 0.4 KV lines were damaged to about 30 per cent	33
(c) Transformers and capacitors	
About 2,500 MVA of distribution transformer capacity must be replaced at a unit cost with switches and hardware of $20/KVA	50
About 430 MVAR of capacitors must be replaced at a unit cost of $10/KVA	5
Distribution subtotal	360

5. In the area of general services supporting all utility activities vehicles, communication facilities, and service buildings are required.

	(Millions of dollars)
(a) Communications	
The complete microwave system must be rebuilt to cover all plants, substations and administrative centres. The power-line carrier system must also be rebuilt	200
(b) Vehicles	
The present fleet is about 2,000 for distribution, 1,000 for transmission, 400 for generation and 400 for administrative. Many vehicles were lost, particularly as a result of the civil unrest. Vehicles required are 2,000 at an average (including high-cost special vehicles) of $25,000/vehicle	50
(c) Special materials	
For offices and service buildings imported items are required such as fluorescent lights, elevators, pumps, etc. to effect repairs	10
General subtotal	260
Total	2 200

Appendix X

SUMMARY OF INTERNATIONAL TELECOMMUNICATION UNION MISSION FINDINGS ON TELECOMMUNICATIONS IN IRAQ (28 JUNE-7 JULY 1991)

1. At the end of 1990 Iraq had a modern telecommunication network serving millions of its people through 900,000 telephone lines. Digital microwave links, fibre optics and coaxial cables constituted the backbone transmission media connecting various cities and villages together. Four Satellite Earth Stations working with Intelsat, Arabsat and Intersputnik, two international exchanges, different microwave and coaxial cable links to neighbouring Turkey, the Syrian Arab Republic, Jordan and Kuwait carried the regional and international telecommunications traffic.

2. At the end of the war and the disturbances that followed, the telecommunications systems were virtually defunct. The picture emerging now shows that at least 400,000 telephone lines were completely damaged and hence put out of service for good. Other telephone lines were partially damaged. The main microwave links connecting cities were damaged. International and regional communications are destroyed. What is left of telecommunication services now is less than 30 per cent as compared to the pre-war situation.

3. People were instantly deprived of their basic telephone services. Government departments such as water and sanitation, health, food and energy were dependent on the telecommunication network. With the telecommunication network severely damaged, control and management of these departments and their services are harshly affected.

4. To control epidemics and diseases, first-hand information is essential. The disease surveillance system for the assessment of health status and trends, monitoring the drinking water supply systems in affected areas and reporting, require rapid transfer of data through communication means.

5. The energy sector essential for vital sectors of life including water and sanitation is working almost blindly. Control of the 20 main power stations responsible for electricity generation was greatly dependent on the public telecommunication network.

6. With the absence of normal telephone communication, human sufferings are great. People who can make it are travelling 1,000 km to Amman in Jordan to make telephone calls to their relatives abroad.

7. Owing to the destruction of the telecommunication infrastructure in Iraq, United Nations agencies are establishing their own radio systems. These systems include HF, VHF and UHF radio and portable Inmarsat terminals. Fixed, portable and mobile radio are installed in Baghdad and relevant cities and field offices. United Nations radio communications in Iraq are subjected to some problems that include inadequate and non-reliable transmission on HF radio, inadequate coverage for the VHF radio, short time intervals allocated

for HF transmission in Iraq and to Geneva to allow for communications on the same frequencies for other parts of the world, temperatures as high as 50°C or more, high cost for Inmarsat transmission and maintenance problems.

8. Huge efforts by Iraqi Government to rebuild the telecommunication network are under way amid severe shortages of spares, non-standard procedures for some microwave and exchange installations (long microwave routes have no diversity, exchanges working with no stand-by processors), lack of proper buildings design to house electronic exchanges, severe and frequent power cuts which damage the electronic equipment, long telephone line connections, high congested trunk routes and so on.

9. In short it can be said that no reliable telecommunications exist in Iraq. This is now leading to a drop in work efficiency in all governmental departments; heavy reliance on transportation and hence increased costs; humanitarian efforts are facing abnormal conditions; people cannot call their doctors or reach ambulances or fire brigades by telephone, no reliable field data can be gathered efficiently; to name few things.

10. The restoration of the telecommunication network to its pre-war condition will take several years and several hundreds of millions of dollars. While it is recognized that such restoration will have to be carried out by the Government of Iraq, in the present circumstances it is not possible for the Government to resume purchase immediately. In the interim, there is a need for international emergency assistance with the provision of $US 41.3 million to purchase priority requirements for basic telecommunications.

11. To meet basic telecommunications services, urgent needs have to be met. The total cost of these needs are $US 41.3 million. This includes:

	(United States dollars)
1,000 public telephone booths to be installed in different parts of the country	3 000 000
10 multi-access radio telephone systems	5 000 000
20 containers (1,000-2,000-telephone capacity)	10 000 000
Portable Earth station equipped with telephone and telex service (60-channel capacity)	5 000 000
Radio cellular system (for fixed telephone installations)	10 000 000
40 electrical generators (40-50 KVA)	800 000
Cables, feeders and electronics spares	5 000 000
100 vehicles for maintenance	2 500 000
Total	41 300 000

12. The mission recommends the following:

(a) To meet the urgent needs of a basic communications system, there is a need for international emergency assistance with the provision of $US 41.3 million to purchase priority requirements as outlined in paragraph 11;

(b) The Iraqi Telecommunication Authority should be enabled to purchase its spares and communication systems contracted before the embargo. Unless spares are available, much of the efforts being carried out now for restoration of communications services will be brought backward;

(c) Assistance is required in the re-establishment of international services;

(d) An ITU office should be set up in Baghdad to coordinate the expected humanitarian assistance in the field of telecommunications. Moreover this office will liaise between different United Nations agencies in telecommunications matters and render technical advice;

(e) The Iraqi Telecommunication Authority, while cooperating fully with the ITU mission, agreed to connect all United Nations offices in Baghdad to one automatic exchange. This is possible now and will facilitate matters for humanitarian agencies in Iraq. Other United Nations field offices will be connected as appropriate.